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FRACTURES AS SEEN BY THE GENERAL SURGEON

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Fractures have failed to receive the attention to which their gravity entitles them. They are the cause of much primary suffering and disability, and of much partial disability or reduced earning power, due to the poor results that are obtained in their healing. There are a number of reasons for this lack of understanding.

In the first place, it is a trait of human nature to give more attention to the things that come to our notice suddenly, than to those observed over a longer period of time. Fractures have been common since the birth of the race. Because of the deformity and disability they produce, they were necessarily recognized and treated in some manner, and the fact that they have been known and treated for such a long time has prevented their receiving the attention which the newer and more dramatic subjects—such as surgery of the abdomen, the thorax, and the glandular system—have attracted.

Then, too, fractures are most common in the laboring class, because their occupations expose them to the conditions that tend to cause fractures. This class has little with which to pay the expenses of care and treatment, and proper treatment is irksome and requires much time and attention to detail. Consequently, there is very little in the way of financial lure to attract the best talent in the profession to devote its time to this branch of surgery; therefore, a great portion of it falls to the general surgeon, and there are many other branches of general surgery which are less irksome and more remunerative, so the work is not attractive. Since the advent of compensation insurance in the industries of the country, it is to be hoped that the above condition will be remedied, but to date the insurance companies have not had time to analyze results and learn what the expense of poor results is, and, in their desire to economize, they defeat their own purpose.

In recent years, some of the larger clinics and hospitals have tried to standardize the treatment of fractures, and have succeeded to a very great extent in reducing the morbidity from these injuries, especially where they handle the cases themselves. But fractures vary so much in character, and accompanying injuries modify their treatment to such an extent, that a standard comprehensive technic cannot be written. Much mechanical apparatus has been produced with the idea of making the treatment of fractures easy. This is of great advantage, but the average surgeon cannot have all these things at hand; however, he can improvise something that will do the work.

In the study of fractures, it is necessary to take into consideration a number of features. So far as the fracture itself is concerned, the principles of treatment are well established, and consist of traction in the case of long bones to overcome the natural tendency of the muscles to produce overriding and angulation, together with pressure and position to overcome displacement of the fragments. If it were not for the care of the soft parts and joints, it seems that the problem would be very simple, but when they are taken into consideration it becomes very complex. And it is just as important that the surrounding or concomitant

injuries and surrounding parts be properly cared for as it is to restore the contour and length of the injured bone. For example, in our over-zealous effort to hold the broken fragments in proper position, we sometimes produce a useless member, as in Volkmann's contracture following fracture of the forearm; or a stiff elbow with the forearm and hand in a position of almost complete uselessness, in fractures near that joint; or, in fractures of the thigh, where the knee joint is so badly damaged that the leg is of very little use after the fracture is healed.

Fractures of the present day differ greatly, in character and in the amount of other injury, from those of a few years ago, owing to the general change in occupation and transportation. A large per cent of modern day fractures are produced by modern machinery in its operation, by the handling of heavy objects which fall with crushing or mutilating force, or by falls from rapidly-moving vehicles. Owing to the above factors, they differ widely in character from the injuries that we were accustomed to see a few years ago, in that they are more often compound and comminuted, and accompanied by more shock and general injury.

To meet the changed conditions in a general way, and to avoid the sequela referred to above, it is necessary to treat these injuries on general surgical principles, with a view to restoring the best possible function to the injured limb. This in a large per cent of cases, means an honest effort to procure a perfect, or as nearly perfect as possible, anatomic result, because a study of the results in a large number of fractures has proved that in probably ninety per cent of cases a good anatomcial result will also give a good functional result, and vice versa. To illustrate our viewpoint, we will take a few examples of common fracture. The old Pott's fracture that was so common in the days of the cowhand and when the horse and buggy were in use, is now replaced by fracture of the leg, or, more often, of the thigh, and with much more general injury. A fracture of the forearm on the order of Colles' is still very common, but is not so common now since automobiles are started with electric starters instead of the hand crank which was used a few years ago; but again the poor fellow who drives a second-hand wreck without a starter is often the victim.

In treatment of the fractures of the lower extremity, we have used a large number of methods. With those below the knee, we have used the old board splint with the end extending below the foot for the purpose of providing a point from which to make traction to produce inversion of the foot, in cases where that is needed; the moulded wire splint; the circular plaster of paris; and the plaster of paris moulded splint. For those about the ankle, on the order of the Pott's fracture, we now prefer the moulded plaster of paris splint, commonly known as Stimson's splint, except that I prefer the lateral splint on the inner side of leg, and prefer to pad my splints with several thicknesses of gauze instead of covering the whole leg with sheet wadding. In the thigh, we began with the old Buck's extension, which I must say was very good in the majority of simple fractures of the femur, but had many failings. Then we used the plaster of paris spica; then the Thomas splint, with its many modifications and imitations. With the Thomas and other similar apparatus, it is necessary to combine skin traction or skeletal traction, both of which have their advantages and disadvantages. The skin traction has the disadvantage of being inadequate in many cases, and in a majority of cases the knee must be put up in straight position, which is often the cause of a bad knee joint in the end. Skeletal traction gives a fixed point from which to make tractions and at the same time allows the knee to be placed in any position most desirable, and allows motion at the knee. It has its disadvantage in that it often produces pain after a number of days or weeks in position, and has the theoretic disadvantage of exposing the patient to infection through the points of insertion of the traction instruments. This is not altogether theoretical, as a surgeon told me only a short time ago of losing the life of a patient through infection from this source. Taking it altogether in the large majority of cases of simple fracture of the femur, it is my opinion that, for me at least, a plaster of paris spica extending from the border of the ribs to the base of the toes on the injured side, and to the knee on the uninjured side, will give the best results in a large per cent of cases. Of course it is necessary to be very careful to replace the fragments accurately. Then, by placing the knee in semi-flexion and the thigh in such degree of flexion and abduction as to relax the muscles, you make retention easier and give better purchase for the plaster to maintain traction. The disadvantages are that it is difficult to hold the fragments in accurate position while applying the cast, and when the x-ray shows that you have been successful in holding them unitl the plaster dries, they will sometimes become displaced later and you have wasted a lot of energy and gone to some expense. But when this

method is successful, your patient does not require the trained attendance that is required with other methods, and may often be cared for at home at greatly reduced cost. Whatever method is chosen, you must persevere and make such modifications or changes in plans as the individual case demands.

In fractures of the upper extremity, near the wrist, in the Colles' type, the greatest number of bad results come from a lack of complete reduction of the fragments and a failure to place the limb in a position of sufficient over-correction to maintain the proper position. Most fractures of this character, if completely reduced and put up in a position of over-correction, will give almost perfect results, even in extreme old age. Fractures of the radius and ulna have been among the most difficult with which I have come in contact, because of the difficulty in getting a complete anatomical reduction of both bones at the same time, and maintaining them in such position that there will not be an impingement of one bone upon the other in such a way as to interfere with pronation and supination. In the case of oblique fractures of these bones, extension and retention are very difficult. Extension can be maintained by construction of a frame to extend from hte shoulder to beyond the tips of the fingers, with the arm and froearm at right angles. The vertical portion of the frame rests against the arm for counter-traction. Traction straps are attached to the end of the frame, and adhesive to the forearm; or skeletal traction may be used in this position, but it very often requires open reduction for one of both of the bones. This should always be done rather than have a deformity that will interfere greatly with function of the member, but a discussion of the indications for open or closed reduction is out of place at this time.

Among the simpler things that any surgeon can take advantage of, is suspension, either in the lower or upper extremity. This adds a great deal to the comfort of the patient and to the chances of recovery in seriously injured limbs. It is applicable especially in injuries of any portion of the arm or forearm. By putting the patient to bed and suspending the arm from a pulley above the bed you can get rid of the swelling and edema in one that is so badly injured that it appears almost hopeless, and would be hopeless if permitted to remain in a dependent position.

Of course the use of Dakin's solution and other methods of cleansing are well-known in the case of compound fractures. The matter of debridement is a subject that is often debated and is for the individual surgeon to determine for himself.

The use of local anesthetic in the reduction of fractures of the forearm especially, is one of the most useful of modern improvements. It permits manipulation of the fragments without pain and without hurry, provides ample time to check the work by x-ray and continue to manipulate for as long a time as is necessary, with one anesthetic, and without any shock to the patient. Spinal anesthesia in the reduction of fractures of the lower extremity, is very useful, especially in fractures of the femur. It gives complete relaxation of the thigh muscles, allows easy manipulation and more perfect palpation of the fragments to determine their position, and lasts for sufficient length of time to permit the use of fluoroscope for as much time as is necessary. The only disadvantage is that there is such a complete relaxation of the muscles of the thigh in some cases that there is not sufficient tone to retain the ends of the bone in apposition while the dressing is being applied. But, taking it altogether, it is ideal for either closed or open reduction in fractures of the femur.

In closing, I will say that whatever plan or method is undertaken, it requires the exercise of all one's surgical judgment to procure a good result in these very common injuries.

CARCINOMA OF THE LUNGS AND BRONCHI. E. V. Goltz, M.D., St. Paul, Minn. Minn. Med., Sept., 1930, p. 605.

The increase in carcinoma of the lung is not wholly apparent, but there is evidence to show that it is actual. Primary carcinoma of the lungs may arise from the columnar epithelium of the bronchi, from the mucous glands of the bronchi, or from the squamous epithelium of the aveoli. The form arising from the bronchial epithelium vary greatly in size, color and consistency; it may remain as a small local nodule with wide metastases, or it may grow extensively into the lung tissue; sooner or later there is obstruction to bronchus. The type arising from mucous glands is rare and usually limited to the walls and substances of the bronchi. Those arising from the pulmonary alveolar epithelium may be diffuse over a large area, or may be multiple and nodular. Primary carcinoma of the lung is prone to metastasize. A careful history will usually focus attention on the lungs, when physical examination and special examinations by bronchoscope, by x-ray alone or after lipiodol injection will give conclusive evidence. The x-ray examinations should be repeated to observe progress. Therapy by x-ray may relieve pain, but progress of the lesion is hardly ever affected.

BREECH PRESENTATION

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Breech presentation, although occurring in only three per cent of our deliveries, has always been regarded with some concern by the patient and her medical attendant. For the mother it may mean dystocia during labor, with the resultant frequent operative interferences and the damages arising therefrom. For the baby the mortality is distinctly higher, averaging three times that of occipital presentations. Careful prenatal management and proper obstetrical care during labor may do much to improve this fetal mortality and minimize the damages to the mother.

ETIOLOGY

Many factors have been given as favoring breech presentation. The fact that it will occur in a patient with a normal pelvis, normal soft parts and a normal baby, lends little evidence to the majority of the etiological factors. According to Williams, presentation is the result of a process of accommodation between the fetus and its environment. Any condition on the part of the mother or the baby which interferes with this process may favor the breech engaging in the pelvis. The condition occurs in about fifty per cent of cases in multiparae with relaxed abdominal walls and relaxed uterine musculature, thereby providing an unusually roomy environment. For the same reason, twins, polyhydramnion, premature children, often favor breech presentation. A contracted pelvis, particularly of the flat type; congenital anomalies of the uterus, such as a bicornate or biseptate uterus; pelvic new-growths; or a low-lying placenta, by encroaching on the roominess of the inlet of the pelvis or by distorting the intra-uterine cavity, may result in breech presentations. Lastly, monstrosities on the part of the fetus may seriously interfere with normal accommodation.

DIAGNOSIS

There are two main varieties of breech presentation, the complete and the incomplete. In the complete breech the attitude is one of complete flexion, the thighs being flexed on the abdomen and the legs on the thighs. This type is also called "frank breech." The incomplete breech presents some anomaly of flexion, such as a single or double footling, where one or both feet are prolapsed into the vagina, or where one or both feet lie up against the face.

Abdominal examination is most often sufficient to make a diagnosis. The longitudinal ovoid with the hard, regular, ballotable body in the fundus and the soft, yielding, somewhat irregular breech over the inlet, are easily palpable. Ballotement of the head can be obtained only if there is sufficient liquor amnii and if the uterus and abdominal walls relax sufficiently. The location of the heart tones is usually above the umbilicus and on the side of the back. Rectal examination will verify the abdominal diagnosis. Whenever there is doubt, the vaginal examination will reveal the soft, yielding buttocks with the crease between them and the prominent rigid sacrum. One or both feet may be felt alongside the buttocks in the complete breech if there is sufficient dilatation. X-ray examination will show the fetal sketleton but is rarely necessary to establish a diagnosis.

PROGNOSIS

Labor is usually longer in breech than in occipital presentations, with resultant frequent examinations increasing the danger of infection and the high percentage of operative interference increasing the dangers to the mother. The soft breech is a poor dilating wedge, particularly if it is incomplete. This causes poor uterine contractions, incomplete effacement and slow and incomplete dilatation. The poor preparation of the soft parts may result in extensive lacerations to the cervix and the perineal structures when the unmolded hard head is delivered.

Breech presentation is particularly dangerous for the child and 6 to 14 per cent of the babies are lost during labor and the delivery. The cord may prolapse alongside the breech and be compressed. The placenta may separate after the breech has been expelled, interfering with the fetal circulation. Asphyxia during delivery often results because the baby cannot be delivered in the 8 to 15 minutes during which the delivery must be completed after the umbilicus appears at the vulva. Brain hemorrhage and tentorial tears are common causes of fetal death. These are the results of hurried misspent efforts in delivering the aftercoming head through resistant structures. Paralysis of all types and broken bones are not at all uncommon.

TREATMENT

We have found it best to consider the occurrence of breech presentation as abnormal and to seek an etiological factor for its causation in our prenatal examination and the examinations during labor. Because of this view we have insisted on a most complete study of the pelvis, the soft parts and the

baby. Any gross evidences of disproportion between the baby and the passages, any uterine anomaly, pelvic new growth or fetal maldevelopment may thereby be discovered early and its importance during pregnancy and labor properly evaluated.

Breech presentations are common occurrences during the seventh and eighth months of pregnancy. They are most often transitory and are the result of the roomy environment at that time. The majority of these will spontaneously convert themselves to occipital presentations and then remain so during the remaining weeks. If on several bimonthly examinations the breech is found to persist over the inlet, gentle attempts at changing its polarity may be made. External version during pregnancy is not entirely devoid of danger and should be practiced only if the pelvis, soft parts and baby are apparently normal. It can be done without anesthesia and with little discomfort to the patient. The presenting part must not be engaged; the abdominal wall must not be too thick or tense; the uterus must not be too irritable; there must be sufficient liquor amnii. The technic is simple and easily carried out. The breech is gently dislodged from the pelvic inlet, and gently stroked upwards, at the same time pushing the head downwards. When the fetus is brought beyond the transverse position the version has been accomplished, for the head can now be gently led over the pelvic inlet. The fetal heart tones must be auscultated every fifteen degrees the baby is turned for it is our only index that we are not interfering with the circulation. Knots and kinks in the cord and partial placental separation are rare accidents but not too rare to make external version unpopular in some clinics. At any change in the rate and rhythm of the heart tones no further attempts at the version should be made. The head may be pressed into the inlet and encouraged to stay there by postural exercises but it often returns to the fundus.

We do not recommend external version during labor either by the abdominal method of Pinard just described, or by the bi-polar method of Braxton Hicks—using one hand in the vagina. Cephalic version during labor is very unsatisfactory and hazardous to both mother and baby in our experience.

During labor, watchful expectancy should be practised. The accoucheur carefully studies the patient to discover any abnormality or cause for disproportion. Everything being normal, the patient is allowed to labor. The course of the labor is carefully watched and the general condition of the mother guarded. She should be encouraged to take nourishment in the form of easily digestible foods and to take plenty of fluids. When she becomes unusually restless, complains bitterly of her pains and has made some progress, some form of analgesia can be given. We prefer morphine sulphate in 1/6 to 1/4 grain doses with serpolamine 1/150 grain or magnesium sulphate 2 cubic centimeters of 50 per cent solution intramuscularly. The magnesium sulphate may be repeated after twenty or thirty minutes. In cases that are unusually long and drawn out one may give Gwathmey's rectal instillation of quinine and ether in oil. The patient will secure much needed rest, awakening after four or five hours and continuing with her labor. The fetal heart rate should be taken every hour in order to be better informed about the condition of the baby. The passage of meconium in breech deliveries has no significance.

Too often the progress of labor is slow and unsatisfactory. This may be due to the early rupture of the membranes and to the fact that the breech is such a poor dilator. This latter is particularly true in incomplete breeches of a single or double footling. It may be necessary to substitute a hydrostatic bag for the breech. A nine or eleven centimeter Voohees' bag inserted into the cervix, with or without an attached weight, will facilitate the dilatation and effacement. For some years we have practised the insertion of a large colpeurynter into the vagina in labors which are unduly lengthy and in which there is little or no progress. This irritates the cervix, stimulating the labor pains and dilating the vagina and resistant perineal structures. It also has the advantage of not displacing the presenting part. Complete dilatation and effacement of the cervix must be secured before any attempts at delivery can be made.

When the breech begins to descend into the perineum, preparation should be made for delivery and for the care of all emergencies which may arise. Drop ether with pains, or better still, ethelegine of nitrous oxide and oxygen should be given, encouraging the patient to bear down. The relief of some of the pains during the second stage will allow the patient to make the best use of her efforts and often facilitates a rapid and spontaneous outcome. In our clinic at the Chicago Lying-in Hospital, we perform a medio-lateral episiotomy on primiparae who have a resistant pelvic floor or a large baby. This facilitates the delivery, prevents serious perineal lacerations and shortens the second stage of labor.

As the feet and buttocks are delivered they should be carefully wrapped in a sterile towel. When the navel appears, the delivery must be completed within eight or ten minutes. The attendant or assistant should keep his hand on the fundus, following it downward as the buttocks are delivered, thereby preventing the arms from becoming extended above the head. Should there be delay in the spontaneous delivery of the rest of the body, the patient should be promptly anesthetized and the delivery completed. Indeed, many obstetricians feel that "manual aid" or delivery of the shoulders and head, should be routinely performed by the obstetricians under anesthesia to avoid many serious complications which may arise at this stage.

An indication may arise for the termination of labor before the buttocks have spontaneously delivered. The indications for breech extraction on the part of the mother may be weak, ineffective pains, the result of a long tedious labor, heart disease, eclampsia, or placenta praevia; on the part of the baby, asphyxia as is indicated by a slowing or irregularity of the fetal heart rate. Should the indication for prompt delivery arise, then one must have the usual conditions necesary for an instrumental delivery. The cervix must be completely effaced and dilated. There must be no great disproportion between the baby and the passages. The baby must be alive. The membranes must be ruptured. Complete surgical anesthesia should be insisted upon. To force the conditions may defeat the purpose for which the extraction has been undertaken, such as saving the life of the baby.

After the uusal surgical preparation, the patient is catheterized, the vagina thoroughly lubricated with green soap and a careful vaginal examination made to determine the position of the baby. If the feet are still in the uterus, one or, preferably, both feet are to be brought down. If the feet are up against the face, as in the incomplete breech, this may be difficult. The whole hand is introduced into the vagina and the anterior thigh located. The hand is passed up to the knee and when it is pushed away from the midline, the leg will flex sufficiently to grasp the foot. Traction is now made until the foot appears at the vulva. Where it has been impossible to brnig down both feet, the traction on the one is continued until the buttocks appear, when traction can be facilitated by hooking a finger in the posterior groin. As the feet are delivered, they are wrapped in a steril towel to provide a better grasp. As the breech comes into view, a better purchase can be obtained by grasping the baby by both thighs, distributing the force equally so as not to injure the child. Gentle but continuous traction is continued downward, always favoring anterior rotation of the back until the lower half of the anterior scapula appears under the symphysis. An assistant should follow the uterus downward as the fetus advances, so as to keep the fundus tightly contracted about the baby to avoid extension of the arms.

Wherever possible we prefer to deliver the anterior shoulder first; however, if the posterior shoulder is more accessible there is no objection to delivering it. The important thing is to deliver the shoulders in situ in the oblique position of the shoulder girdle without rotation. Should the head be above the inlet, as is often the case, rotation of the shoulder girdle may cause an overstretching of the nerves of the neck and a resultant Erb's paralysis. The index and the middle finger of the more adaptable hand are passed up under the pubis over the child's back and down to the elbow. By flexing the two fingers and twisting the wrist, the baby's arm is swept over the chest, down and out. This sweeping motion keeps the arm and forearm in flexion and closely applied to the baby. The baby's body is now lifted upward toward the mother's groin, avoiding too great an angulation, and the posterior shoulder is delivered in the same manner.

The delivery of the aftercoming head is best effected by the method of Celsus-Wiegand-Martin. The hand whose palm applies to the abdomen searches the baby's mouth, two fingers are allowed to rest on the posterior angles of the baby's jaw, the child lying on the forearm. The other hand is placed above the symphysis on the baby's head and, by combined pressure from above and traction from below, the head enters the pelvis obliquely and is rotated anteriorly. The nape of the neck stems under the pubis and the face is delivered over the perineum, keeping the chin well flexed on the chest. As soon as the baby's mouth can be exposed with the aid of a retractor or at the vulva, it can be wiped free of mucus and the baby can inspire air. The delivery need no longer be hurried.

Various complications may arise to interfere with the normal mechanism briefly outlined. When an incomplete breech has descended onto the perineum, the extraction may begin by gently hooking the index finger into the groin of the child and making traction until the buttocks appear at the vulva, when further traction can be facilitat-

ed by hooking the other finger in the posterior groin. When the arm is found extended or around the baby's neck, its extraction may be aided by gently rotating the child in the direction favoring the wiping of the arm across the face. It is then delivered in the usual manner. When the shoulders are impacted it may be wise to push the shoulder girdle above the brim where the arms can be reduced or placed in the transverse diameter. If the umbilical cord is too tight and interferes with traction, it can be cut between clamps.

Delivery of the aftercoming head may offer several variants. Rarely the occiput will rotate posteriorly in spite of all caution. Two fingers of one hand grasp the shoulders from below, while the other hand draws the feet over the abdomen of the mother, stemming the neck under the pubis and causing the occiput to sweep over the perineum. The Prague maneuver often causes extensive maternal lacerations, as it presents the most unfavorable diameters to the pelvis.

Forceps on the aftercoming head are becoming very popular. Their judicious use and proper application will prevent many cerebral hemorrhages, the most frequent cause of fetal death in breech deliveries. Several authorities recommend their use routinely. The Piper forceps have been devised to facilitate the application of forceps on the aftercoming head. Undue pressure on the head from above undoubtedly increases the bi-parietal diameter, frequently ruptures the falx, tearing down the tentorium and forcing the medulla oblongata into the foramen magnum. In our clinic we apply the ordinary DeLee-Simpson forceps to the aftercoming head when safe pressure from above does not result in its prompt delivery.

CONCLUSIONS

Careful prenatal care to determine disproportion, to rule out abnormalities, and to evaluate each case individually, will greatly improve the high fetal mortality that exists in breech deliveries. When the disproportion appears to be too great for delivery from below, where the mother is an elderly primipara and the baby assumes added importance, where fibroids or an ovarian cyst complicate the delivery, one has ample indications for an elective cesarean section, preferably the laparotachelotomy under local anesthesia. The careful management of the patient in labor will do much to insure a successful outcome. Lastly, more babies are lost in breech deliveries as a result of undue hurry and misapplied force than of the limited time available for the deilvery. A careful duplication of the mechanism intended by nature in each individual case, constantly on guard to prevent complications, will do much to improve fetal mortality.

SURGERY IN PULMONARY TUBERCULOSIS

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The failure of routine sanatorium care to achieve favorable results in a large majority of advanced tuberculous patients, after cavity formation, is glaringly reflected by repeated statistics, which show that at least three-fourths of such cases are lost within a span of five years. Hence, the logical trend of modern treatment has been more and more consistently toward collapse therapy for some years with surgical measures playing an increasingly prominent role therein recently; and adequate gratifying experiences have justified the prevailing recognition, by progressive clinicians, of established collapse procedures as an integral graded link in our therapeutic armamentarium against advanced phthisis.

The surgical approaches to the omnipresent disease revolve around the judicious application of the underlying concept of all tuberculo-therapy—rest—locally to the diseased lung in part or toto. The variable degrees of immobilization and collapse obtainable from the various procedures, and the varying response of different patients to the same compression measure under seemingly similar involvements, together with the never-to-be-forgotten fact that tuberculosis is a generalized disease, make the successful solution of this surgical problem a purely individual but often intriguing one, which demands a nicety of judgment and breadth of clinical experience that is equalled in few fields of surgery.

The effort of this presentation is not to offer an exhaustive dissertation on this vast subject, but rather to review briefly the practical value of our recognized surgical adjuncts in tuberculosis and to stress the more widely applicable procedures of phrenic-exeresis and extrapleural thoracoplasty, which at present enjoy the greater vogue.

Intercostal neurectomy, paralysis of the parietal respiratory muscles, is a relative innovation in phthisiotherapy of most recent years, that has so far been little used, but is inferentially of very limited value as a minor improving aid in certain retrogressive patients, who are unsuitable for either pneumothorax or thoracoplasty. Its usefulness will be somewhat enhanced if combined with phrenic interruption.

Cavity drainage, by galvano-cautery or the

superior electro-coagulation method, should be considered only for a solitary tuberculous cavity with secondary infection and resultant toxemia, which posterior thoracoplasty and supplementary operations have failed to obliterate. I have used this aid in two such instances with success.

Extrapleural pneumolysis is a method of selective surgical collapse that theoretically appears to offer the solution to many cases with a single cavity of only moderate size in the upper lung, as the chief sequela of the disease; but, in practice, the filling schemes developed to date have so frequently failed to maintain the excellent degree of cavity collapse obtainable at operation, that the measure has been little used independently and scarcely at all in this country. On the Continent, however, it remains the preferred treatment in some clinics for an upper lobe cavity persisting after posterior thoracoplasty, and is thus doubtless of merit, but in my opinion more definite results will usually be obtained on these occasions by supplementary costectomies, provided they are invoked before extensive regenerations and cross-union of ribs have occurred.

My experience with the pneumolysis in fifteen cases (one muscle, three paraffin and eleven gauze tamponades) is that the paraffin method is the best filling scheme, but the operation alone will prove only an improving measure and the indications for its use thus are decidedly restricted.

Intrapleural pneumolysis is an invaluable adjunct in a selected small group of artificial pneumothoraces, where complete pulmonary collapse is prevented by a few string-like or thin membranous adhesions and the attainment of a successful pneumothorax by division of these restraints offers a reasonable prospect of ultimate cure of the disease under this therapy. The well known fact that tuberculous patients do not tolerate pleurotomy at all well makes the division of intrapleural adhesions by "open" operation seldom justified, especially as recent years have witnessed the development of the highly technical but safer and more satisfactory "closed" method, whereby the adhesions are severed with a galvano-cautery or electro-surgical unit under guidance of a thoracoscope.

My experience with this pneumolysis is limited to three open and five closed procedures. The open operations resulted in considerable effusions which required aspirations, and pneumothorax treatment was continued in only one case; the cavity ruptured in one patient with secondary pleural infection and subsequent drainage through the operative incision; while the other case soon developed a tuberculous empyema which nullified further pneumothorax therapy. On the other hand, the five closed cauterizations had a smooth convalescence with inconsequential effusions, and pneumothorax was continued in all of them.

Phrenicectomy, or phrenic-exeresis, the simplest of our operative procedures in tuberculosis, has obviously become the most frequently performed one, but its use has yielded to date a wider range of variable results than any other collapse measure.

The favorable influence of phrenic interruption at times on fibro-caseous lesions in the apical region, is responsible for the prevailing view that the effects of this procedure are largely dependent on complete paralysis or immobilization of the corresponding diaphragm, with its associated pulmonary relaxation and rest, rather than the original concept of compression incident to ascent of the paralyzed muscle, which is of import mostly in basal involvements. This assumption is further substantiated by the physiological fact that mobility at the apex is chiefly dependent on excursions of the diaphragm.

The trophic view advanced in Germany several years ago, that interference with vagus and sympathetic fibers to the lung by phrenic exeresis is responsible for the favorable influence of this operation, may be a factor in our results, but such remains yet to be proved.

One might surmise from the growing enthusiasm for phrenic surgery in some quarters that this measure was fallaciously viewed by a few almost as a surgical panacea in advanced tuberculosis, rather than in its true light of a supplement to other collapse therapy, particularly complete thoracoplasty and artificial pneumothorax in fibro-ulcerative cases.

However, the comparative benignity of phrenicectomy, in the presence of adequate vital capacity, commends its independent use (1) in favorable chronics who need a little more than sanatorium regimen for consistent improvement; (2) as an improving aid in selected patients with too much involvement for thoracoplasty and adhesions preventing artificial pneumothorax; and (3) for the attainment of specific objectives in certain cases, when the more potent procedures of pneumothorax and thoracoplasty are not feasible, viz.: repeated hemoptysis, moderate hemorrhages, distressing diaphragmatic adhesions, and the alleviation of harassing cough in occasional late caes.

My experience with phrenicectomy in tuberculosis comprises 355 patients on

whom this measure was used for the following reasons:

Supplementary to pneumothorax ..... 31 cases
Supplementary to thoracoplasty ..... 68 cases
As an independent procedure .....256 cases
(a) For specific objectives only ..... 81 cases
1—To test status of contralateral lesions....12
2—Hemoptoptyses (15 successful) 21
3—Hemorrhages, small and moderate.....10 (7 successful)
4—Basal adhesions causing distress.....29 (20 relieved)
5—Harassing cough in late cases ..... 9 (5 benefited)
(b) as an "improving" adjunct.....175 cases
Improvement of varying degrees in 70 cases which was marked in 21 cases; 9 patients with solitary cavitation of moderate size and with little associated pulmonary involvement subsequently healed this lesion without other collapse therapy.

Extrapleural thoracoplasty is the outstanding contribution of surgery in tuberculosis, but its far-reaching possibilities are just beginning to dawn on the profession. Being our most influential surgical procedure, and the only one that accomplishes collapse of an entire lung analogous to pneumothorax, the requirements for thoracoplasty are the most exacting in collapse therapy, and the selection of suitable subjects is its paramount issue.

It is deemed superfluous to delve into the fundamentals relative to indications for this operative measure before this assembly, so for the sake of brevity we will simply enumerate the prime requisites in their order of importance. The triumvirate of (1) contralateral lung, (2) extent of fibrosis and (3) cardiac reserve, must be evaluated in a most painstaking manner when this intervention is contemplated; while almost as essential for correlative information are the sedimentation test and vital capacity. The latter two determinations are so informative that to ignore their significance may prove the breaking point in our results; in fact, too much stress cannot be laid to vital capacity, which should be routine in all chest surgery even when we are dealing with much simpler operative procedures than thoracoplasty.

It is indeed regrettable that we not infrequently hear that some clinicians, specializing in tuberculosis, will permit their initial enthusiasm for this surgery to become dampened, as they feel that their results are not commensurate with the risk taken by the patient. With disparity toward none, I believe the perspective is due to the fact that they are inappreciative of the task before us. Such desultory results are usually not attributable to the operation per se, but rather to the fact that the procedure has not been properly graded or timed in its sequence so the walls of cavities are operatively approximated, which is necessary for their eventual obliteration.

The prevailing conception of thoracoplasty in these cases is a two or three-stage operative procedure, and when this is completed, we are only too prone to express ourselves adversely relative to this operation, if the result is not brilliant. Unfortunately, none of us possess the uncanny intuitive power to unerringly determine the extent of resections necessary in every case, as lung fibrosis, pleural thickening and flexibility of cartilages are impossible of mensuration; hence, some cavitation will at times persist, especially in very fibrous cases and when the interval between stages has been prolonged through unforseen contingencies.

In the medical management of tuberculosis, persistence is the foreword and no specified time is allocated to a patient to make a recovery, but it is very necessary that we readjust this perspective for cases after thoracoplasty when a cavity remains patent; and advisedly persevere early with additional surgery until the optimum result is attained.

For example, let us assume that the case has had a two-stage operation but a cavity still persists; then we should take a definite stand relative to supplementary work, depending on the condition and operative response of the individual within a period of, say, approximately ninety days. The type of surgery here indicated falls under three heads: (1) extrapleural pneumolysis or apicolysis, feasible only for small apical cavitation, (2) parasternal thoracoplasty, the best method before fixation of the paravertebral area, and (3) antero-lateral costectomy, the only alternative as a late procedure when rigidity of the operated chest has occurred.

Obviously, we are failing in these patients by permitting a long interim to ensue before insisting upon supplementary surgery; too often a year or more has elapsed, when extension in the contralateral lung or low cardiac reserve prohibits further surgical help.

One can hardly dismiss any general consideration of thoracoplasty in tuberculosis without at least passing reference to associated bronchiectasis, which, in my opinion, is present to some degree in most cases of far-advanced phthisis. This concomitant usually becomes of import only when the diseased lung is inadequately collapsed by thoracoplasty, which is commonly the result of a faulty procedure, and the resultant distortion with narrowing of the larger bronchial trunks soon causes bronchiectatic changes, which are forcibly brought to one's attention by the persistence (instead of disappearance) of sputum after operation, that is found to be bacillary-free.

Realizing the proved fact that thoracoplasty even under ideal conditions is more of a palliative than a curative measure for advanced bronchiectasis, it is therefore of paramount importance that this associated condition be promptly recognized and its extent visualized by bronchography, in order that its further development may be early curbed by supplementary costectomy of wide scope when physically feasible; otherwise the results of thoracoplasty will be correspondingly vitiated in such cases.

Resuts in 165 extrapleural thoracoplasties performed the past nine years on advanced tuberculous patients, many of whom did not fulfill the strict indications laid down for this operation, are as follows:

Total operative stages	302	
Apparently cured	50	(30.3%)
Arrested	34	(20.7%)
Improved	8	(4.8%)
Unimproved	2	(1.2%)
DEATHS		
Operative (first week)	12	(7.3%)
Early (within three months)	16	(9.7%)
Late (after three months)	43	(26.0%)

THE SPECIFIC TREATMENT AND PROGNOSIS OF HAY-FEVER

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The general public are aware that hay-fever can be prevented, and have learned to apply for treatment well in advance of the expected date of onset of their symptoms. To this group specific treatment, which is "preseasonal," offers a good chance of preventing the attack which will surely come if no treatment has been instituted. There are patients, however, who wait until their acute symptoms have already become well established before applying for relief. To this group "co-seasonal" treatment offers something in the way of immediate relief. Symptomatic treatment may be indicated in any case and may frequently be quite effective.

Specific desensitization finds its widest application in the treatment of hay-fever caused by pollens and the same principles and methods should apply to specific treatment with many other substances besides pollen. Desensitization is the process by which the reaction of the patient to the offending substance may be modified, and is frequently desirable and clearly indicated. It is highly specific and no treatment will be successful unless the extract is made from the exact substance causing the symptoms. If the patient has symptoms in late July and reacts to Bermuda grass as well as, for example, Russian thistle, an extract of Bermuda grass will not protect him from Russian thistle.

The degree of sensitivity varies widely among individuals and must be determined as carefully as possible before beginning treatment. This degree of sensitivity manifests itself in at least three ways: First, the degree of clinical sensitiveness indicated by the severity of symptoms and by the apparent amount of exposure to produce them. Second, the tolerance is indicated by the size of the skin reaction in relation to the dilution of allergen used. Third, the degree of sensitivity may be estimated by the response to subcutaneous treatment, the tolerance being high when successive doses can be rapidly increased with only small reactions, and low when small doses produce large local reactions and are slowly increased. We must always qualify degree of sensitivity by making it clear how it is determined. In most cases patients highly sensitive clinically will give large skin reactions and frequently to small subcutaneous therapeutic doses. Violent hay-fever, however, is not always accompanied by large skin tests, and, too, the skin test may be large and symptoms mild. More important are those whose scratch test reactions are small to pollen dilutions and yet who will react violently to relatively small doses used in subcutaneous treatment. The tolerance to subcutaneous doses varies widely, but is usually fixed at a fairly definite level for each patient beyond which any considerable increase will cause excessive local reactions. Tolerance can be raised but only small doses should be used for this purpose, as general reactions may result from larger doses.

Subcutaneous tolerance and clinical sensitiveness rise and fall together, and the difference in individuals depends on difference in the level of tolerance, so the maximum dose depending upon the sensitivity of the individual must not be set at any particular quantity for a group of patients. Set dosage, based on the average response of average patients, will benefit those average patients, but if the dosage is too large, constitutional reactions will occur, and if too small there will be no relief of symptoms.

In prophylactic or preseasonal treatment the time of the initial dose is arbitrarily determined and ranges from six weeks to four months previous to the expected date of onset of symptoms. On the whole, it seems that an early beginning of from eight to twelve weeks in advance of the onset of the season is followed by better results than when treatment is started late.

The size of the initial dose is based on

tolerance. At first the only available index is the result of scratch or tntra-dermal tests made with different dilutions, and treatment is begun with that dose which gives a negligible reaction. In former patients returning for treatment in another year, the written record of previous treatment is of far greater value than the skin tests, and current treatment can be started with a dose close to that which first produced a definite local reaction the previous year.

The number of doses and interval between them cannot be determined in advance but must depend upon the progress made, with the local reaction to subcutaneous doses being the important guide to treatment. The local reaction consists of redness and swelling and wheal formation at the site of inoculation, which begins at once after injection and reaches the maximum in six to twelve hours and often remains as a diffuse red, itchy swelling for twenty-four hours or for days. If the reaction is small, the dosage usually can safely be doubled. Some clinics do not try to get local reactions, but most allergists believe it is only by producing and watching them that treatment can be properly adjusted. Aim to get a local reaction the size of a fifty-cent piece and raise and lower next dose accordingly.

Successful results depend upon a treatment which is optional for the particular patient and it is desirable to reach this dose before the pollen gets into the air. Best results are obtained when treatment is continued into the pollen season and often to the end of pollination of the causative plant. Sometimes in the season one can stop treatment, if the patient has passed the usual time for his symptoms and remains free while other individuals are having symptoms.

Co-seasonal, or phylactic, treatment is conducted in a similar way, except that doses are given daily or every few hours, provided the reaction from the last dose has disappeared. The doses are smaller and given intra-cutaneously. The local reaction must be much more guarded and controlled because the poison absorbed through the nose, added to that given by injections, may easily make an excessive total dose. Constitutional reactions are important and may be serious in any patient receiving desensitization treatment. The symptoms are severe and prompt, ordinarily occurring a few minutes after treatment. These reactions are caused by over-dosage, accidental injection into a venule and the change from an old to a new extract during the course of treatment. Intra-muscular and intracutaneous injection further increase the possibility of general reaction. Prompt use of epinephrin usually relieves immediately.

In the past, very little has been said about the curability of hay-fever. But as time passes and the number of cases treated thoroughly and repeatedly for many seasons are accumulating, we are coming to the realization that it is possible for hay-fever to be permanently relieved. Henry states that successful desensitization for three to five years frequently gives permanent results. Walker, in an analysis of 100 apparently cured cases (the word "cure" meaning freedom from symptoms for two or more years without treatment), concludes that when pollen tests become negative it seems safe to stop treatment. In those in whom tests do not become negative, it is desirable that the patient have at least one and preferably two seasons of complete freedom from hay-fever while being treated before treatment is discontinued. Piness reports 90 per cent of his cases get relief. Bernton says 94 per cent of his cases improve. Von de Vear, Cooke and Spain report 75 per cent to 100 per cent relief in 85 per cent of their cases in 1925.

While the results of pollen therapy as a whole are good, there are many cases of failure and this may constitute the majority in the hands of men who have had little experience with this form of therapy. The number of failures ranges from 5 to 10 per cent. Cohen and Rudolph give the cause of failure as follows: (1) Incorrect diagnosis; (2) inadequate or improper treatment; (3) inability of the patient's body to develop a tolerance to pollen following injections of pollen extract; (4) contact with unusually large doses of pollen.

Sometimes there is a co-existing sensitivity to some substances other than pollen which may exacerbate symptoms during the pollen season, and failure to determine and eliminate these extra factors is responsible for the majority of failures by specific methods. Belyeat emphasizes the importance of orris root and finds it to be a factor in 7.2 per cent of 373 cases of hay-fever. Gelfand concludes from a study of his failure cases of hay-fever that extra pollen sensitivity is often accountable for non-response to specific treatment and recommends that all seasonal hay-fever subjects be tested routinely with the inhalants and the food proteins.

Attention to certain factors will lead to maximum results. These factors are: early preseasonal treatment, with treatment continued into the season; individualization of dosages of pollen extract and intervals of

treatment, according to the reaction of the patient; careful determination of the pollen to be used; and preservation of the potency of the pollen extract by refrigeration in concentrated form.

Ramirez, who has analyzed 425 cases treated by different methdos, draws the following conclusions: "It is evident that the best results are obtained in cases coming about three months before the expected pollination date, receiving two weeks' intensive treatment, increasing the dose of pollen rapidly and continuing injections up to the pollen season, reaching as high a dose as possible, then continuing injections once a week throughout the entire season."

CHEMOTHERAPY IN SO-CALLED ALLERGIC DISEASES

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In considering chemotherapy in allergic diseases, this review will limit itself to asthma and hay-fever and our experiences for the past two years, in the treatment of these diseases with chemicals.

It is necessary to realize that these patients have a definite hereditary tendency, that emotional upsets frequently precipitate severe asthmatic attacks quite suddenly, with a gradual decline the rule. Sudden changes in climatic conditions frequently cause decided upsets, badly ventilated rooms, and various other causes that eliminate any possibility of pollen and protein being alone the etiological factor producing these manifestations.

During attacks we frequently find definite metabolic changes in the body and in the body secretions that lead us to believe either that the changes are produced by the diseases or that the disturbance of the metabolism causes the disease, or at least a tendency to precipitate an attack of the disease.

We are all aware of the patient who goes to a high or low altitude and frequently secures instant relief, for a time at least, and does so while on the same diet or in the presence of the same external exciting cause. This leads us to the supposition that an economic balance has been obtained that produced the relief.

It is to be noted that patients with a low alkali reserve and a high acid are not as subject to these attacks—witness the diabetic, pregnancy, acute infections, and the habitants of the higher altitudes. These are known to have, as a rule, a low alkali reserve, and also it is well known that patients of this class are relatively free from allergic manifestations, even though at other times they are subject to severe and at times frequent attacks.

It is never advisable to institute therapeutic procedure in hay-fever in any form until the upper respiratory passages and the sinuses have been examined by a competent specialist and all traumatic and infectious conditions ruled out, and in asthma, traumatic and cardiac conditions eliminated. A careful history and dermal tests are quite necessary to determine the offending agent and are fairly reliable, but it is quite disconcerting to place a patient on a special diet and have him return in a short time in more distress than ever. I do not wish to decry the use of skin test, and the usual procedure of desensitizing an individual. For years I have used this method and expect to employ it, when advisable, in the future.

Of the numerous chemical agents employed in the treatment of these disorders we will review a few that have enjoyed considerable popularity, some over a long period of time.

In asthma the iodides have been used quite extensively with, at times, very satisfactory results. Many failures can be traced to selecting a therapeutic agent when it is not at all indicated. The use of iodides should be based on their tendencies to promote the absorption of inflammatory or hyperplastic products. They are apparently more effective when the pathology involved belongs to the nervous or the connective tissue structures and in particular when the process is determined by the syphilitic, the rheumatic or the scrofulous cachexia. Over purely idiopathic hyperplasia or inflammatory products the resolvent power of the iodides, though often decided and sufficiently so to be exceedingly valuable clinically, yet is distinctly less pronounced. In affections of epithelial structures, the influence of the iodides is perhaps the most marked in bronchocele, and much more so in the idiopathic variety than in that belonging to Basedow's disease. To develop the full effect it is often necessary to resort to 2 to 4 drachms a day, especially in organic diseases of the nervous system, whether syphilitic or idiopathic.

Sodium iodide bears to the potassium salts the usual relation of a sodic to a potassic chemical brother. It is less depressing, less irritating, and less diuretic but also, though efficient enough in ordinary cases, is less reliable in those cases that test medicinal potency most severely. The dose is the same, with the observance of the same precautions.

Certain calcium salts, as a stimulant, as-

tringent, alterative, resolvent and antiseptic, have been employed in asthma and hay-fever for some time. And we see some quite striking results in the use of calcium chloride intravenously, 5 c.c. of a 5 per cent solution being used. It has been our practice to discontinue the use of calcium salts orally whenever possible, as we find in the presence of fats in the gastro-intestinal tract a saopy concretion is formed that is indigestible and is unassimilable. When we are forced through circumstances to use these salts orally, we restrict all fats in the diet and give the doses between feedings.

The salicylates have been employed for many years in many asthmatic conditions, frequently with beneficial results. It has been proved that the salicylates, if given in sufficient doses, will produce acidosis.

Mineral acids are now being used quite extensively, and justly so. Nitrohydrochlorric acid, in 6 to 12 min. doses four times a day, has produced some quite striking results, especially in hay-fever. Our experinece has been rather disappointing with this agent in asthma; and with the dilute hydrochloric acid, even in one drachm dose three times a day, we have been more disappointed.

Unfortunately we have been unable to keep a very close record of some of our cases, due to the fact that many of them live out of town and we do not get to follow them as closely as we should, but will review some of them.

CASE REPORTS

Woman, age 64, came to us in February, 1924, with asthma. No exciting cause could be found, but the history revealed that these attacks always came in February and only when she was living in her home that was in an alfalfa field. We found moving her to other surroundings gave instant relief. We also found Lugol's solution, 3 min. doses every four hours, gave her relief in twenty-four hours, and, if continued for a week or ten days, she had no more attacks until the next February.

Male, age 44, coal miner, had asthma for more than fifteen years. Lugol's solution gave relief in a few days, and he was able to continue work as long as he used the medicine. But discontinue the medicine and his attacks would return immediately.

Female, age 9, has had asthma for six years. She had skin test made and proper desensitizing procedure instituted and continued for one year without results. Acid and calcium over three months' time had no effect. Acid and a solution of spleen liquid prepared by Armour and Company gives perfect relief from twenty-four to forty-eight hours, but is not permanent.

Female, age 34, had asthma for six years. Desensitized without results. Change of climate to any place gives relief for about two months. Acid and calcium gives some relief if used constantly.

Male, age 41, hay-fever. Desensitized annually for three years with some results. Calcium and acid gives good results.

Male, age 39. Hay-fever. Desensitized annually for four years. Some relief. Calcium alone, gave complete relief.

Female, age 36. Hay-fever. Desensitized annually for two years. Some relief. Calcium gives complete relief.

Female, age 7. Hay-fever one season. Ten days' acid therapy gave complete relief.

Our conclusions are: Always have skin test made to determine the offending agent, and remove the cause, if possible. Use desensitizing therapy if practical and supplement that with acid and calcium treatment. If impractical to desensitize the patient, use acid and calcium alone. We feel there is no specific for this class of patients, but do maintain chemical treatment is of great assistance to about sixty to seventy per cent of these cases, and often gives complete and apparently permanent relief.

ALLERGY FROM THE STANDPOINT OF THE OPTHALMOLOGIST AND THE OTOLARYNGOLOGIST

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There is, perhaps, no special group of men in the practice of medicine who have a better opportunity t oobserve allergic phenomena in the early stages, than the ophthalmologist and otolaryngologist. It has been our experience that many of the patients who are to become true allergic cases—i.e., hay-fever sufferers and asthmatics—have some ocular or nasal manifestations of this beginning allergic condition, often many months or years prior to the development of hay-fever and asthma.

OCULAR MANIFESTATIONS

There is, of course, a certain number of cases who present themselves annually, particularly during the spring or summer months, who come to us thinking they need glasses or who have been referred to us thinking they have some infectious condition of the eye. The most common forms of allergic phenomena which occur about the eye are: chronic conjunctival hyperemia (chronic conjunctivitis), chronic marginal blepharitis, tearing (epiphora), and encanthis (caruncilitis). These cases present a similar clinical picture, regardless of the anatomical lesion. The majority of these patients complain of itching and burning of the eye with a pronounced asthenopia. Each has a slight photophobia due to the irritation and subsequent epiphora. Their eyes tire easily upon the slightest provocation. Examination will show little or no refractive error, with normal intra-ocular findings. These cases may be divided into the animal protein group: i.e., dandruff, cat hair, dog hair, duck feathers and goose down, and will generally show positive to these extracts when given intra-der-

mally. In the second group, we find the seasonal hay-fever patients who are susceptible to the various botanical groups. The botanical group seem to establish a certain ocular immunity after a period of pronounced symptoms. That is, a patient who comes into this hay-fever district may complain bitterly of the eyes at first and, after a short period, have little complaint, even though he has developed into a typical allergic victim. This does not seem to be true of the animal protein group. Their condition seems to be progressively worse unless the etiologic factor is removed. We see this in the patients who are sensitive to duck feathers and goose down. They complain bitterly of their eyes, particularly in the morning. The reason for this, of course, is that they are more or less in contact with the goose feathers and goose down while sleeping. They generally respond when kapok is substituted for feathers in their pillows or feather beds. The family cat may be at fault and may be the cause of these eye conditions.

The inoculation of the eye may be from many sources. (1) From systemic toxemia. The mechanical noxae may make the attack from the blood stream, from which they are thrown out into the tissues that become affected. This is true of the food-sensitive cases. A good example, however, of this particular type, are those in which crysarobin or napthalin is used in the treatment of skin diseases, with subsequent ocular manifestations. (2) Nasal lachrymal passage, in a well developed allergic, sneezing, causing a back flow through the nasal lachrymal duct into the eye. These cases usually show a severe inflammation of the caruncle (encanthis). Their symptoms are more confined to the inner canthus of the eye and will show the effect of having rubbed their eyes very forcibly. (3) Through contact. Of course, these cases are the ones whose eye symptoms become pronounced upon motor trips, as they come in contact with the heavily pollinated air; their symptoms are much more pronounced when there is heavy weather, than when it is still. Also, following rain and fair calm weather, the atmospheric condition has a favorable influence.

Methods of treatment in these cases are varied and more or less unsatisfactory. Collyrium, which is astringent in nature, is of value. This not only mechanically washes the globe but more or less closes the lymphatic channels. Some form of glucose mixed in this collyrium serves as an ameliorant and seems to allay the irritation and give comfort to the patient. Adrenalin, or suprarenin, is widely used, but is of very temporary value. Should the pain and tearing be so pronounced that the patient is, as he terms it, nearly crazy with rubbing his eyes, then, the use of eye drops containing a quarter per cent holocaine, is not harmful in ameliorating the symptoms. The treatment of these cases is, in the main, either desensitizing or the avoidance of pollinated areas and motor trips, or moving to the sea-shore during the hay-fever months.

NOSE, THROAT AND EAR

It is sometimes hard to determine whether the allergy through blocking has preceded an infection of the nasal accessory sinuses or whether the infection has been responsible for the allergic symptoms. The part played by bacteria as an etiologic factor in nasal allergy, has yet to be proved. I believe that the general opinion is that the bacteria are secondary invaders which are aided by the blocking and congestion of the nose due to the allergic sensitization. However, in cases consulting the rhinologist for blocking of the nose, allergy should always be kept in mind. The general belief is that general vasomotor reactions occurring in hay-fever and bronchial asthma are manifestations of hypersensitiveness; the histopathology shows a marked thickening, hyperplasia and polypoid degeneration, of the mucous membrane. The tunica propria of the epithelium shows an eosinophilia, a large round cell infiltration with some tissue proliferation. There is a dilatation and thickening of the blood vessels. There is also, in the periosteal layer, a round cell infiltration and connective tissue multiplication. Eosinophilic infiltration in the mucous membrane of the nose and sinuses, with free eosinophiles in the nasal secretions and blood, are then, of course, suggestive of allergy; just as eosinophiles in the blood and sputum are indicative of the existence of allergy in bronchial asthma. In every case of suspected allergy, the nose and sinuses should be carefully studied for these findings, as they may be a valuable adjunct in making a diagnosis of allergy. Any case of non-suppurating or hyperplastic sinusitis should, to my mind, be considered allergic, until it is proved otherwise. There has not, as yet, been any definite classification of the allergic diseases of the sinuses as compared with other forms of sinus disease.

The treatment of these cases is indeed a problem. Any treatment is of value only in the amelioration of the symptoms, which are often so distressing as to interfere with the patient's livelihood. Day after day, in our office, patients come to us with a history of having sinus disease. The majority of these cases have run the gauntlet of the rhinolo-

gists and a great number of them, we are sorry to say, have been little benefited by the treatment given them. The reason for this is, of course, that local treatment is only palliative and not curative. The finding of the obnoxious agent and general desensitization is, of course, the only sure cure for these patients, other than a change of climate. Avoidance of pollen-contaminated areas is of importance. Air filters are of value. Locally, the treatment is aimed at some preparation which will prevent the mucous membrane of the nose and throat from actual contact and absorption of the pollen toxin. Liquid petrolatum is as good as any preparation I know. Some find the use of ephedrine in some form to be of value. Yet, we find that the allergic patient soon builds up a tolerance for the ephedrine products and they then not only become ineffectual but actually stimulate cellular hyperplasia. Therefore, we do not recommend their use. Surgical intervention is indicated only in those cases which, through the blocking due to the allergic sensitization and subsequent vasomotor disturbance, develop a true infection in the sinus proper. Should the blocking become so profound as to interfere with the nasal respiration, producing violent attacks of headache, it is usually well controlled with the implantation of a small radium needle in the lateral wall of the inferior turbinal bodies, allowing freer ventilation of the nose following the contraction produced by it. However, this should be used with caution. Removal of the turbinal bodies is mentioned only to be condemned. This is, to my mind, one of the most vicious practices which reflects on the rhinologist. These patients, of course, get immediate relief of their nasal blocking and feel exalted for a short period of time. They then return with the symptoms of a dry throat, air hunger and many more disturbing symptoms which are much more distressing than their former nasal obstruction. Should there be, however, a nasal deformity or thickened septum, bony growth or deflection, then these should be corrected only. To repeat: Let me say that the conservative treatment, the aim of which is only to protect the normal mucosa until general desensitization can be accomplished, is what we consider the treatment par excellence. Local treatment is, then only palliative and not curative.

The relation between bronchial asthma and nasal infection. It has been our experience that a large percentage of asthmatics depend upon chronic sinus disease combined with allergic phenomena.. We believe that sinus infection is never the true source of allergy but aids in the general toxic condition and is, therefore, a contributory or seconadry factor. Surgery in asthma has come into more or less disrepute. There are several reasons for this: first, the existing histopathology has been poorly understood; second, the anatomy of the ethmoidal labyrinth whwich, in the great majority of cases, is at fault, is such that it extends into regions which are more or less inaccessible either by intranasal or external operative routes. Any surgical procedure which would attempt to exenterate this region, would be a procedure which is certainly improper to undertake. So-called exenteration of the ethmoids is usually followed by recurrence of the hyperplasia and polypoid formation, not because of operative incompleteness, but due to deep-seated histopathology inherent within the ethmoidal labyrinth. To claim, without deep study, a cure for asthma by radical surgery, is certainly not rational nor effective. It can not be said that all asthma is due to allergic phenomena, nor that it is due to infection. It is generally always a combination of both, for patients who have had radical surgical procedures which should cure, in my observation get only slight relief and continue to have asthma. Therefore, in these cases, desensitization with conservative local methods aimed at adequate drainage of the accessory sinuses, is, in our mind, the proper rational regime of treatment. Antral infections are, of course, from their anatomical location, much more accessible than any of the other accessory sinuses. Conservative operative measures here, such as a nasal antral opening, are indicated should the antrum be found to be infected. This is usually a satisfactory procedure, particularly in bronchial asthma. The nasal symptoms are based on irritation of the sensory nerve fibers. Itching and tickling, resulting in sneezing, are of course, a common finding. This is due to the absorption by the nasal mucosa of the allergic products. Pain due to blocking of the nose, which is deep-seated and accompanied by a mucoid discharge and which is followed by severe edema of the mucous membrane, is common. We see others who complain of catching cold early in the summer and its staying with them until fall. The majority of these are allergic. The pathology in asthmatics is identical with that of the nasal mucous membrane—cosinophilic infiltration, thickened mucous membrane, connective tissue hyperplasia, and therefore, secondary disturbance of function.

The ears do not escape this allergic reaction. The continuity of the mucous mem-

brane of the nasal pharynx with that of the eustachian tube, renders this organ susceptible. The same pathology as existed in the nasal mucosa is present in the walls of the eustachian tubes. This causes a blocking of the tube which interferes with the ventilation of the middle ear. This produces, of course, subsequent contraction and adhesion of the tubal walls, resulting in so-called catarrhal deafness. These patients may also complain of mastoid pain due to the absorption of air from the pneumatic areas of the mastoid and intense itching is present in most cases, the patient being unable to localize it, but apparently it runs from the nasal pharynx to the middle ear. Repeated inflations of the middle ear will prevent, to a certain degree, adhesions of the eustachian walls, with subsequent deafness. Tinnitus also is generally relieved by these inflations.

Argyrol packs, neo-silvol packs, hygroscopic compounds (glycerine) and suction. For vasomotor constriction: ephedrine, adrenalin. Astringents: zinc sulphate, aluminum sulphate and silver nitrate. Colloidal silver preparations seem to be in vogue in almost every rhinologic periodical. We see these preparations written up by competent men and depicted as almost a panacea. These preparations are presumed to pass through the mucous membrane into the underlying tissue and remove, in some fantastic manner, the actual tissue hyperplasia which has taken place and, after from six to eight weeks of treatments at twenty-four hour intervals, the part is said to be immune to allergic phenomena, as far as the nasal mucosa and accessory sinuses are concerned. In our experience this is not true.

The basis for allergic phenomena is disturbed metabolism, whether this be due to faulty assimilation or to some toxic protein compound which, within itself, is toxic. Therefore, we must look upon these conditions as an alteration in the chemical structure of both the cellular protoplasm and the fluids surrounding it. In conclusion, let me say that the treatment of allergic conditions about the eye, the nose, throat and ear, are only palliative in nature, curative measures depending entirely upon desensitization or avoidance of contact with the affecting protein. In other words, allergy is a constitutional disease and must be treated as such.

GENERAL ANESTHESIA FOR SHORT OPERATIONS

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For many years ethyl chloride and a certain patented compound which is principally ethyl chloride (I refer to somnoform) have enjoyed a degree of popularity for surgical operations of brief duration. This is chiefly on account of ready portability, ease of administration and a good working depth. It is of course well known that for administrations of brief duration nitrous oxide-oxygen is by far the safest and least toxic of all anesthetics, but the cumbrous nature of the necessary apparatus has made its use scarcely available except in hospital. Then, too, in nervous patients a satisfactory depth of narcosis is often so difficult to secure as to result, in many instances, in practical failure.

My experience with somnoform extends over many years and includes something like five or six thousand administrations. Untoward effects were rare but did sometimes occur and upon one occasion resulted in positive disaster. Because of the ever-present, though remote, possibility of danger of syncope which is inherent in ethyl chloride and ethyl chloride compounds, I finally became discontented with somnoform and began to try to find a satisfactory substitute of sufficient portability for practical purposes.

The promise of an anesthesia of greater depth from ethylene, over that of nitrous oxide, led me first to think of this agent. With a view to obtaining the greatest degree of portability I wrote to a chemical company putting out gas-oxygen, inquiring if a mixture of ethylene-oxygen in a three to one ratio might be supplied in a single container. I was not surprised to have the proposition turned down as impracticable. This company did consent, however, to put up for me nitrous oxide-oxygen in a ninety-four to six ratio combined in a single cylinder.

Both nitrous oxide-oxygen and ethylene-oxygen proved very disappointing in depth of anesthesia, and quite inferior to somnoform in that particular. Finally, after trying to anesthetize a nervous old lady, for tooth extraction, with straight nitrous oxide-oxygen, with the result a complete and dismal failure, I decided to try out the routine addition of a drip cupful (two drachms) of ether in every case of short anesthesia. The result was satisfactory beyond all expectation. Of course I had long known and used ether addition to nitrous oxide to intensify the depth of anesthesia. What I had failed

to appreciate was the perfect innocuousness of ether so used. I had expected to find the almost constant occurrence of nausea which is so usual a sequel to ether administration. Instead I found that, when the ether was limited to about one drip cupful on my Sanders mask, that is to say, about two drachms, there was a smoother recovery from the anesthetic and fewer cases of post anesthetic vomiting than when somnoform was used.

One very marked advantage that this anesthetic has over somnoform is the absence of the need of haste. The operator who uses somnoform must be prepared to work fast as it is suitable only for operations of very brief duration. Only too often the surgeon who wants a "whiff of gas" finds that it takes more time to satisfactorily complete the operative procedure than had been anticipated. In fact, this is usual. So that anestheisa of sufficient depth once attained, it may be prolonged as necessary by continuing the nitrous oxide-oxygen alone or with the addition of a little more ether as the occasion requires. Of course, when anesthesia is prolonged beyond that usual for brief operations, the surgeon can not and should not expect the patient to be so quickly ready to leave the office nor to be so sure to entirely escape nausea. After all, the principal object to be attained is that the operation should be done thoroughly and safely under a comfortable working depth of anesthesia.

As to the portability, I have already stated that I had put up for me a ninety-four to six nitrous oxide-oxygen mixture in a single container. This had in the main proved so satisfactory that I was about to present this subject in the manner it is now given. Before doing so I desired to test out several ratios of nitrous-oxide-oxygen such as ninety to ten and ninety-two to eight mixtures with a view to obtaining the most suitable strength best to meet the majority of requirements. The ninety-four to six worked very well with adults, ut was found to be too concentrated for children without admitting air from time to time.

I applied for ninety to ten and ninety-two to eight mixtures but was turned down by the manufacturer. I tried another firm, only to meet the same discouragement. This latter house declared they had not been asked to put up a nitrous oxide-oxygen mixture in a single cylinder in the past fifteen years.

In spite of the theoretical objections raised by the manufacturers, the one-tank mixture works satisfactorily. I have used three tanks of ninety-four to six mixture and should know. In view of so much opposition on the part of the chemical houses, I decided for the present to use one tank each of notrous oxide and of oxygen, which I carry in a holder of my own contrivance.

This holder consists of two oval bands of monel metal connected by a strip of metal at the top, to which is attached a carrying handle. Bolts passing through the middle of the ovals and between the cylinders, draw the bands down to figure-of-eight shape and clamp the cylinders to that they are held rigid.

By using B cylinders, the weight is not much more than a good-sized doctor's satchel. The Sanders mask I use is easily carried and is probably the best one in the market for this purpose.

The Technic. In giving short anesthesia the bay is filled with nitrous oxide and a rather liberal proportion of oxygen, perhaps as much as twelve or fifteen per cent. By gradually adding more nitrous oxide I soon have the mixture reduced to about six or eight per cent oxygen. The free use of oxygen at the outset prevents any smothering sensation and helps ease the patient into tranquil anesthesia. Before beginning, it is well to assure the patient that the mask will not be held tight to the face but will be lifted from time to time. This measure, by eliminating fear, aids in bringing about a smooth induction and enables the anesthetist to observe from time to time the color of the face. Additional spurts of nitrous oxide and oxygen are added from time to time as needed. After administering the gas for a minute or two, ether, at first slowly, is allowed to drip, drop by drop, into the mask. The rate of dropping is so gauged that by the end of five minutes the drip cup is empty and the patient almost invariably anesthetized to a comfortable working depth.

It is to be remembered that this procedure does not result in ether anesthesia. It is essentially a gas anesthesia intensified by the addition of a small amount of ether and has the prompt recovery and freedom from after effects that is usual when gas-oxygen is given. To produce real ether narcosis would require, not one, but five drip cupfuls of ether.

The carrier I have devised may also be used as a holder to steady the tanks so that the gas may be turned on with one hand while the other controls the mask.

The list of operations which may suitably be performed with the anesthetic procedure just described, includes tooth extraction,

opening boils, abscesses and small carbuncles, reduction of fractures and dislocations, rectal sphincter dilation, treatment of anal fissures, evulsion of finger and toe nails, paracentesis, tampon in the middle-ear infection and the removal of dressings which are adherent to raw surfaces.

There is only one important contra-indication to the use of nitrous oxide in brief operations and that is the existence of obstruction in any part of the respiratory tract, from the mouth and nasopharynx to the tiniest bronchioles. Nitrous oxide, harmless as it usually is, may become very dangerous in the presence of respiratory obstruction.

There is nothing new in the use of ether for increasing the depth of gas anesthesia. It has been used daily for many years, but so far as I know this routine has never been proposed as an eminently safe, satisfactory and portable substitute for ethyl chloride and its compounds.

CASE DISCUSSION

(Case of Multiple Peripheral Venous Thrombosis).

(Case No. 16011, Case Records of the Mass. Genl. Hosp., from New Eng. Jour. of Med., Jan. 2, 1930, p. 32).

Case Record

A married Polish woman forty-one years old entered June 15 for study, semicomatose. The history was given by her sister, who spoke little English and had not been with the patient much during the present illness.

Five weeks before admission she had sudden severe stabbing pain in the middle lateral portion of the left leg, making her sit down for a minute or two. The leg soon became red and blue and moderately sore. The condition traveled up to the groin, where a large tender lump formed. She had sensations of needles and pins in the left leg. No other part was affected. She continued to work, though she felt some malaise. The sister did not know about fever. The left leg was much swollen for a week. Apparently there were visible veins on the left side of the abdomen. Gradually the swelling went down and the lump in the groin disappeared. Two weeks before admission the patient had pain in the left upper arm, whether sudden or not was unknown. Within two hours the hand and arm had become swollen and blue, with numbness and pins and needles sensation. Since that time she had been in bed, feeling much worse. Veins soon appeared over the left shoulder and the precordia and still remained. During the two weeks a physician gave her five injections, the last five days ago. She had been alternately hot and cold, sometimes shivering (no real chill), at other times sweating profusely. She had complained at times of quite severe pains in the lower abdomen, the left axilla, not related to respiration, somewhat relieved by pressure, and pain in the lower back relieved by nothing but hot irons. During the two weeks she had taken nothing but water and orange juice. A menstrual period began twelve days before admission and continued with fairly profuse flow until the day before admission. She had lost considerable weight. She complained at times of pain and discomfort in the left anterior thorax, and at such times seemed to have slight difficulty in getting her breath. During the past five days the discoloration and swelling of the arm had disappeared. During the past two days she had become increasingly unresponsive. Her bowels had not moved for a week.

Her family history is not significant.

She had always been strong and healthy, though obese. Her sister knew of only two illnesses. Eleven years before admission, three days after the birth of a child, the patient got up and began to work. She was seized with sudden abdominal pain which required a hypodermic for relief and lasted about two hours. The next day she was entirely well. She had had several similar attacks at intervals of one to two years. Three years before admission she was kicked in the left ankle, which swelled and was sore for about two weeks, with entire recovery. Her last pregnancy, three years before admission, resulted in a stillbirth at term.

Clinical examination showed a well nourished woman, semicomatose, giving an occasional drowsy groan and now and then waving her left arm slowly. Head, throat, heart, lungs and abdomen normal. Over the upper left chest and shoulder anteriorly the veins were more prominent than elsewhere. In the left supraclavicular space there was an indurated area extending laterally along the floor of the space. The left arm was redder than the right and showed numerous telangiectases on the forearm. The skin of the left foot showed some desquamation. The leg was redder than the right. Both legs showed many varicose veins. There was a small black papule on the left leg. Pupils normal. Knee jerks hyperactive.

Amount of urine not recorded. Both of two catheter specimens showed a slight to a large trace of albumin and occasional leukocytes, one to two red blood cells per field once, acetone and diacetic acid positive once, specific gravity 1.026 to 1.035. Blood: 18,000 to 22,500 leukocytes, 80 to 84 per cent polynuclears, hemoglobin 70 per cent, reds 3,600,000. Two smears showed no achromia, anisocytosis or poikilocytosis, platelets normal. Four atypical cells seen, almost certainly yelocytes; two definite blasts seen. Hinton negative. Blood culture: no growth. Non-protein nitrogen 38 milligrams.

Until June 18 temperature 100° to 101.5°, pulse 100 to 120, respirations normal; a terminal rise to 106.1°, pulse 150, respirations 51.

A consulting neurologist could not explain the semicoma. He found the fundi and reflexes negative. No Kernig or Babinski. He recommended a lumbar puncture. It was done and was negative.

The patient remained in the same condition as at admission. The night of June 17 she was said to have had a convulsion followed by coma which was still present the next morning with no other physical signs than the rise in temperature, pulse and respirations and a marked increase in swelling around the left supraclavicular space with heat and a yellow tint as of subcutaneous hemorrhage. There was also a large swelling in the right supraclavicular space, thought to be a lymph gland. June 19 her condition became steadily worse and she died.

Discussion by Dr. R. J. Stroud, Tempe, Ariz.

Thrombosis in general attacks the venous system. The structure is that of a deposit of blood platelets gradually laid up in layers, which constitutes the head or white portion, and a tail and body of blood elements, which are red. It is in dispute whether infection is always present, or whether it can form from variations in blood flow, changes in blood constituents, and changes in vessel walls, independently of infection. Thrombi form in the immediate neighborhood of infected foci; in large venous trunks opposite an inflammatory area, and so forth. There are those which form at places remote from the original focus and those which arise from infections, specific, as typhoid or complicating cachexias and constitutional diseases. Whether infection is secondary or whether the thrombus forms only when infection is present, is not the point in this instance as, when the spread came, there was undoubtedly infection present. When multiple thrombi occur there must be an original source of infection for no doubt embolic processes take place in this condition. There is the possibility of a process on the veins similar to the heart in an infective endocarditis, in which emboli form other thrombi. If we give credence to selectivity of organisms there is the possibility of a strain which attacks the intima of the veins. This would account for multiple infection and thrombi. The primary thing would be mycotic endophlebitis with many secondary thrombi. The left thigh is most often the seat of thrombus in primary affections of vein plugging, as was the case in this particular woman.

There are several things to explain in this particular case. The sudden sharp pain in the abdomen, which disappeared, could have been a small thrombotic area in the mesentery; the pains of the left axilla and the left anterior thorax, could be either within the chest cavity or related to the veins outside. Inside the cavity there could be and probably was some thrombotic infarction. Syphilis could be present when we consider that the last child was stillborn, but against that is the fact that seldom is a thrombus due to syphilis found except in subcutaneous veins. There is a menstrual flow to be considered—lasting 12 days and profuse, perhaps menopausal—but still not accounted for in the light of the fact that a thrombus could have come from infected adnexa. There was some anemia which could have followed the primary condition and which favored the ever-extending thrombi. There was an infective process when the white blood count was taken and the few myelocytes found were insufficient to diagnose leukemia. No growth on blood culture, when taken only once, does not preclude organisms and infected emboli in the blood. The loss of weight and only orange juice by mouth, accounted for the acidosis present, as well as the high specific gravity. This could also account for the albumin. The comatose condition was apparantly unexplained, as no eye examination is described and other neurological findings are negative. Sinus thrombosis, together with the apparent jugular thrombosis, could account for this even with no increase of pressure in the spinal fluid. It is very hard to rule out syphilis in this class of death, with a negative finding neurologically. Blood pressure is not given so we are at a loss to know how the arteries were. The heart shows no evidence of septic endocarditis but it is hard to rule out.

Diagnosis: Multiple venous thrombosis and death from sinus thrombosis.

Original focus probably from primary endophlebitis of left thigh.

Possibility of syphilis or septic endocarditis.

Discussion by Dr. James Madison Greer, Phoenix.

The important points given in this case are: Working woman age forty-one; some indefinite symptoms in the abdomen or pelvis in the past; this illness starting with a sudden sharp pain in the calf of the leg followed by swelling and some other signs of infection in the venous or lymphatic system, later subsiding. Two weeks later a condition in the left arm similar to that starting in the leg, with still some other signs of more or less general infection. There was also some abnormal menstruation. Gradual increasing unresponsiveness, with coma and death.

There are several things we should like to know about this case, in addition to what is given here. This so many time happens, not only in these cases we study here, but also in the cases we see in our daily work. We note that the head, thorax, heart, lungs and abdomen are normal. It would seem that that is a lot of territory to be taken in by only seven small words; however, it is quite characteristic of many of my own recorded physical examinations. We should like to know what the pelvis showed on physical examination. It is said that the abdomen was normal. Does that include the pelvis? The signs over the left shoulder are those of a septic phlebitis and the left foot showed signs of a previous inflammatory process, probably concerning the blood vessels or lymphatics. There seems to me nothing significant about the urine, that is, nothing more than one would expect to find in a patient so ill. The blood picture indicates a septic process, and some secondary anemia. The Hinton is reported negative, but I am quite sure that Dr. Clohessy would not rule out syphilis, in this case. I am not surprised that the consulting neurologist could not explain the semiconsciousness. I can hardly explain it myself. As this discussion is getting rather long for me, and nothing can be gained by turning it upside down or around, I shall now venture a diagnosis. From the sequence of events—the phlebitis, which in all probability came from the pelvis—I should like to say that the patient developed a septic thrombosis followed by cerebral abscess. Of course there is always the possibility of syphilis and malignancy in a case like this.

Diagnosis: 1. Septic phlebitis and embolus.
2. Cerebral abscess.

Discussion by Dr. Orville H. Brown, Phoenix.

The pain and swelling of legpoints to a venous thrombosis. Likewise, the signs and symptoms at other places were indicative of phlebitis and thrombosis. Probably the cerebral condition also was dependent upon phlebitis.

The enlargement within the left supraclavicular space suggests lymph node enlargement. The small black papule on the left leg suggests the possibility of a melanotic sarcoma. There seems to be no other suggestion of melanosis, however. The leukocytosis suggests acute infection. There is a moderate anemia. The myelocytes and myeloblasts indicate serious bone-marrow disturbance, and would suggest the diagnosis of acute aleukemic myelogenous leukemia. So far as disclosed by the record in this case thre was no mouth sepsis, a common condition in acute myelogenous leukemia. The process was acute. There was no growth of organisms, however, on blood cultures. The phle-

bitis and thrombosis may arise from one of a variety of causes, such as septico-pyemia, puerperal infection, erysipelas, appendicitis, dysentery, gonorrhea, typhoid, measles, smallpox, diphtheria, gout, rheumatism, fractures, passive congestions, and so forth. Therefore, it seems that thrombosis might not be unexpected in acute myelogenous leukemia. Acute myelogenous leukemia belongs to an illy defined and understood pathological group sadly in need of study and differentiation. For the want of a better diagnosis, and taking the findings of the unusual leucocyte, I venture the diagnosis of acute myelogenous leukemia.

Discussion by Dr. Fred G. Holmes, Phoenix.

Possible diagnoses in this case are: (1) primary blood dyscrasia of a nature of myelogenous bocemia; (2 chronic septic process with septicemia focus located at undetermined point in the body; (3) some form of purpura; (4) luetic disease, suggested by the still birth three years previous. Of these diagnoses it seems to me that the most support can be found for the second, namely, septic condition with focus somewhere in the body. Definite localization of such focus is not suggested by physical examination or the history, as these are confined chiefly to description of the actual peripheral lesions. An endocarditis with septic emboli might produce this clinical syndrome. Even the myelocytes in the blood could be explained by chronic stimulation of bone marrow and blood building elements. The final condition on admission, which gradually terminated in coma and death, fits in with this diagnosis. A convulsion which was followed by coma without other localizing findings might be teken as central nervous system involvement, possibly causing an increase in pressure over the entire cerebral spinal system.

Discussion by Dr. T. T. Clohessy, Phoenix.

We have here, first, severe pain in left leg, followed by swelling of the leg and a tender lump in the groin, with subsidence later. No fever or leukocytosis mentioned, although they were probably present, as they were found later with a somewhat similar condition in the left arm. Three weeks after the first attack the left arm became swollen, this time with the significant polynuclear leukocytosis, fever, feeling of hot and cold, and sweating. Her present condition would certainly point to some bacterial infection, the brunt of which was first manifest in the left leg and later in the left arm and adjacent region. This infection has produced a phlebitis, first of the leg and later of the arm. Where the original focus of infection was, I see no indication in the record, except it be where she complained of pain in the left anterior thorax, with difficulty in breathing; at the same time, the left lung was apparently clear. These two positive signs and one negative sign would lead one to believe that the infectious focus was somewhere in the endocardium, possibly the lighting up of an old mitral valve lesion without physical signs. Negative blood culture would not obviate the possibility of occasional bacterial showers in the blood, To me the most probable diagnosis is phlebitis from some internal focus of infection, very likely the endocardium.

Discussion by Dr. Richard Cabot.
(In part, from above journal. p. 33).

The severe stabbing leg pain is evidence of embolus, whether arterial or venous we cannot yet decide. She continued to work, so I suppose it was venous. Presumably the injections given by her physician were morphia. She had pain in the left anterior thorax, on the same side on which she had something in the arm. The fact that the swelling in the arm disappeared, as did the swelling in the leg, is support to the idea of venous thrombosis. If her illness eleven years before admission was not gallstone I do not know what it was. On the basis of the history we certainly must believe that she has had multiple thrombi. It is much more natural to think she had first embolism, later thrombosis, in the leg, then in the arm, and very possibly something in the lung. This makes us look for a source of emboli.

I do not think we need pay any attention to that acetone and diacetic acid. We assume that there is no sugar in the urine. She may have been vomiting. If it is not due to that, she was so nearly unconscious that she has not taken much food and therefore has starvation, the usual cause of that finding. Unless the definition of myelocytes is given it does not help me at all; different people attach that name to many different cells. I am relieved that the consulting neurologist could not find the cause of the semicoma.

Differential Diagnosis

I feel so far very uncertain as to the diagnosis. I feel quite clear that she has venous thrombosis first in the left leg and then in the left arm.

Dr. Mallory: It is fair to say that there were large lymph nodes in the left groin.

Dr. Cabot: That is important. We have, then, large lymph nodes in the left groin as well as this one in the supraclavicular space; with evidence of multiple venous thrombosis and coma.

A Student: Would you consider diabetic coma?

Dr. Cabot: I should say it is very queer to have a person die in diabetic coma with no more history of increased appetite, thirst or albuminuria and with a negative urine. During the two weeks five injections were given. That is a queer way to give insulin. I am going to vote against diabetic coma. But that was a very ingenious suggestion. I never should have thought of it myself, but I admire the brain of the man who did.

I do not think we have enough evidence of a decided acidosis,—no air hunger, which we ought to get with any severe acidosis. I think we ought to assume a brain lesion. Let us discuss what may have been found in the brain. In the first place whatever blocked the circulation in the extremities may have blocked a vein in the cerebral system, a sinus for instance. I do not see why sinus thrombosis might not produce this cerebral condition. I have seen cerebral thrombosis without any localizing symptoms. If the edema of the brain was general it might account for the coma. Second, we have these enlarged lymph glands, which worry me a good deal. Whatever those are may conceivably be in the brain, too. What could they be? Could she have the lymphoid form of leukemia? I think not. Even if you agree that those are myelocytes, four myelocytes do not make a leukemia any more than one swallow makes a summer. If we take the red count seriously she has anemia; patients do not have red counts like that without some explanation. There is however the difficulty that she has no achromia, which is almost always present in any of the common types of secondary

anemia. I cannot therefore connect her anemia with the enlarged lymph glands, if they are enlarged lymph glands, and I do not see how we can say it is leukemia.

A Student: How about aleukemic leukemia?

Dr. Cabot: Let us call it lymphoblastoma without circulating metastases. What evidence have we of it? We have those four myelocytes, whatever weight we put on those, and more important, the presence of a definite anemia and possibly of enlarged glands. I do not remember seeing glands of this sort associated with such a blood as this in any type of blood disease that I know. I do not see how a diagnosis of any blood disease could be made on the basis of these facts alone. I do not know what those lymph glands are. They might perfectly well be neoplastic lesions of some type not connected with the hematopoietic system; but I do not know where to put any such neoplasm. One that would bring about thrombosis in the left arm and left leg with a gland in the right axilla is a hard one for me to think of. Hypernephroma is a tumor as often missed as any tumor we have. I do not remember seeing it going with any such metastases, if they are metastases, as this. We look for bone metastases in hypernephroma. Where else in the body could neoplasm be relegated? The tail of the pancreas? I remember they caught me with that twice at the Brigham Hospital, no one having suspected it. The lung? Perfectly possible so far as I know. We had proof of it last week. We had no x-ray in this case. I do not know just why not.

A Student: Is thrombosis sometimes due to mechanical pressure of enlarged glands?

Dr. Cabot: Yes. That is a good suggestion, especially about this leg, because that is the side on which we had a big gland. I think that is the best suggestion we have had. We have some enlarged glands, with thromboses. Still we want to know what the glands were. Could we say that these are the glands of Hodgkin's disease, of the primary type of lymphoma? I do not know why not. That seems to me a good idea. I had not thought of it at all. It could go perfectly well with this blood picture, and such thrombosis could be connected with such enlarged glands.

Clinical Diagnoses (From Hospital Record)

Multiple thrombophlebitis with septicemia.
Pneumonia.

Dr. Richard C. Cabot's Diagnosis

Hodgkin's disease with thrombosis.

Pathologic Discussion by Dr. Tracy B. Mallory.

(From page 35, above journal).

This case was one primarily of Hodgkin's disease. I think the unusual manifestations of the phlebitis and the coma rather distracted attention from a good many details which ordinarily might have commanded it. There was a huge mass of tumor tissue which measured 5 by 6 by 7 centimeters approximately in the position of the thymus in the anterior mediastinum. That should certainly have given evidence on percussion of the chest, certainly would have shown if an x-ray of the chest had been taken. There was pretty general lymph node enlargement, most marked in the left groin and in the retroperitoneal glands. The veins of the right leg and left arm showed fresh thromboses which I think were infectious in origin. Possibly pressure had something to do with them, too. The brain lesions we have not had time to study thoroughly yet. There were many very minute miliary areas of softening which in sections showed edema and absorption of myelin but no leukocytic reaction, and in the sections there seemed to be thrombi in a few of the smaller vessels. It probably represents another focus of the migrating phlebitis which she had elsewhere. It is a very unusual picture. I have never seen anything like it, and I do not know yet exactly what it is.

ANATOMIC DIAGNOSES

1. Primary disease.
Lymphoblastoma, Hodgkin's type.
2. Secondary or terminal lesions.
Migrating thrombophlebitis, peripheral and cerebral.
Multiple miliary softening of the brain.

CASE DISCUSSION
(Three Months' Pain in the Left Lumbar Region).

(Case 17011, Case Records of Mass. Genl. Hosp., from New Eng. Jour. of Med., Jan. 1, 1931, p. 31).

Case History

This patient was a business man sixty-one years of age who was admitted to the hospital October 20 with a history beginning about seven months before of sudden onset of pain in the left lower back. He was seen by his doctor, who treated him symptomatically. The patient also had some osteopathic treatments. X-ray showed arthritis of the hip joints. After a few weeks the pain disappeared and he seemed to be quite well again.

Then in July he had a sudden onset of cough which his physician described as typical of whooping cough. This lasted for about eight weeks. He also had a fever which continued until the present time. Pus was found in his urine, and persisted through several examinations. Because of this he was sent to a hospital and cystoscoped. Nothing was found to account for the pus.

About three months ago he developed pain in the back so severe that he could neither lie nor sit in comfort. After that had persisted for two weeks he was taken to another hospital by an orthopedic surgeon who had him on a bed with boards. After three or four weeks the acute distress began to subside he was sent home, the fever continuing, but the back pain much relieved. About two weeks before entry he had an attack of severe pain in the left upper quadrant which at first was thought to be due to gas, but because of the persistence of the pain and some spasm the question was raised as to the possibility of a subphrenic abscess. The pain continued up to the time of entrance. The only thing about the gastro-intestinal history was the loss of appetite and the very marked constipation, amounting to obstipation. He had a running fever for five months. Until very recently no cardiac murmurs were heard.

In addition to the above story he gave the history that for two years he had had mild attacks of angina that had disabled him very little. They always occurred on exertion, on stepping out into the cold and after meals, and were relieved if he immediately stopped walking for a moment or two. The attacks were very brief; he never took nitroglycerin for relief. With the onset of fever he began having more severe attacks of angina, requiring nitroglycerin and for some attacks morphia.

He had always been well and strong except for rheumatic fever at the age of twenty-five, but there is no history of any involvement of the heart. He

had passed repeated heart examinations for life insurance companies.

When we examined the man we found him obviously very weak, with marked pallor. The heart was about 9 centimeters, which was for a man of his size well outside the nipple line. There was all the evidence of aortic regurgitation. The blood pressure was 150/40. An electrocardiogram showed normal rhythm, rate 105, slight left axis deviation, slight slurring of the Q-R-S complexes. His left upper quadrant was very painful and tender but beneath the resistance we could feel a mass which we thought was undoubtedly an enlarged spleen. The lower border of the liver was down below the navel. This was very difficult to explain. It was not tender and did not suggest the liver of acute congestive failure. There were no signs in the lung, no edema of the legs. The spine was rigid and almost any movement in bed produced pain referable to the vertebral column. He had in the left fundus a very small hemorrhage suggesting a petechial hemorrhage, but there was no clubbing and no tenderness of the finger tips.

We examined his urine for blood nearly every day for the two weeks he was in the hospital and never found any red blood cells. The leukocyte count was 14,000 to 7,600, the reds 2,800,000 to 2,950,000, the hemoglobin 45, the differential count 78 per cent polynuclears. The stools were negative.

During hi scourse in the hospital he ran a very septic temperature, the highest being 103°. The pulse rate was 90 to 130. The blood pressure was 150/40.

He had repeated attacks of very severe angina, coming more and more often and not relieved by nitroglycerin. He had to have sometimes as many as three quarter-grain doses of morphia to relieve him. On account of the distress due to angina pectoris we kept him morphinized during the last three or four days of life in order to minimize these attacks. Finally on the sixth of November about seven o'clock he had a very severe attack of anginal pain of sudden onset and died.

His x-rays show advanced hypertrophic changes throughout the vertebral column. There was no evidence of any metastatic malignancy in any of the bones.

Discussion by Dr. H. D. Ketcherside, Phoenix

This man undoubtedly died of angina, probably a coronary occlusion; but how can we explain the other symptoms? The most outstanding symptoms were pain in the left lumbar region and left upper quadrant; persistent fever extending over a five months' period; a mass in the upper left quadrant, which was thought to be an enlarged spleen; and an enlarged liver.

Considering the causes of lumbar pain, we find that the great majority of cases can be placed in one of three groups: (1) Infections; (a) local, as tuberculosis of the spine, perinephritic abscess; (b) general, as typhoid, acute endocarditis, sepsis. (2) Orthopedic Lesions; lumbago, sacro-iliac strain, osteoarthritis. (3) Renal; pyonephritis, tuberculosis of the kidney, renal stone, hypernephroma. On account of the long-continued fever and absence of renal symptoms, I believe we can exclude the last two groups in this case, although we know that he did have some osteoarthritis, as shown by x-ray. Considering the local infections, I believe we can eliminate tuberculosis of the spine, since there was no evidence of it in the x-rays. Perinephritic abscess is not so easily eliminated. If it did occur, it was probably a blood-borne infection, and we should look further for the source of the infection. Of the general infections, we shall have to consider typhoid, since this patient had a continuous fever of four months' duration, and a mass which was thought to be an enlarged spleen. His temperature was more of a septic type and he had a high leukocyte count, so I am going to eliminate typhoid.

We are left, then, with acute endocarditis and some form of general sepsis to consider. The heart murmurs were discovered only two weeks before admission and seemed to be confined to the aortic valve, so I do not believe his infection was primarily an endocarditis. I believe this man had a general sepsis, the exact nature of which I am unable to state, but since the onset of fever and cough coincided, I am going to say his trouble started with some respiratory infection, and outline the subsequent events something like this: The infection starting in the lungs, was carried by the blood to the kidney, forming a perinephritic abscess which was near the upper pole and extended upward, forming a subphrenic abscess; or there may have been no perinephritic abscess, but metastatic abscess in liver and spleen.

Discussion by Dr. J. D. Hamer, Phoenix

A subacute bacterial endocarditis would suggest itself as a probable diagnosis in this case. It could account for this patient's prolonged course, the septic type of temperature, the appearance of evidence of a valvulitis, the enlargement of the spleen and liver, the secondary anemia, the leukocytosis. Against this diagnosis, however, is the absence of red cells in the urine, the absence of petechial hemorrhages (except a questionable petechia in the left fundus), and a lack of finger clubbing. But it would be interesting to know the results of a blood culture.

The angina dates back to a period prior to this last illness. At his age, there could be sufficient evidence of changes usually found in anginal cases, in this patient at autopsy, that is, sclerosis of the coronary and other vessels. It is true that the angina was the immediate cause of death, but there were undoubtedly other contributing causes. Coronary embolism or thrombosis could occur in association, or as the result of an endocarditis, with infarct formation, and this could give anginal-like pain also.

The arthritis of the hip joints and spine were chronic affairs, maybe dating back in their beginning to the attack of rheumatic fever twenty-five years previously, and if, at the present time, an acute exacerbation of active septic infection was present, it would be logical to assume that these vulnerable joints would flare up and become actively inflamed and painful again. If this be a case of bacterial endocarditis, it is difficult to explain the portal of entry. His attack of whooping-cough would be very unlikely to be the cause. However, it is seldom possible to determine the portal of entry in any of these cases.

Discussion by Dr. Victor Randolph, Phoenix

Two principal diagnoses in this case appear to be given us gratuitously, i. e., arthritis of the spine and angina pectoris. There is also some hearsay evidence but no exact findings regarding a

renal or genito-urinary condition. The nigger in the woodpile is an enlarged liver and possibly spleen. The former, we are told, has no relation to the heart disease and this statement is supplemented by absence of edema in the extremities, and the statement that there were no signs in the lung. It is insinuated that he had vegetative endocarditis. There was fever for three months which was found to be septic while he was under observation. He had a marked secondary anemia and a supposedly petchial hemorrhage in the retina. We have bed-side witnesses to the presence of aortic disease. We have no evidence that any one thought it worth while to eliminate the most common cause of aortic disease.

Now we have to reconsider the diagnosis given of angina pectoris. It was not relieved by nitroglycerine and therefore was probably more than single angina. The electrocardiograph suggested affection of the ventricular conduction system but did not show coronary occlusion. Nevertheless, the cardiac pain was sufficient to make me think that there was myocardial damage and that the heart condition was the cause of sudden death. I am inclined to think that the diagnosis was not made but that most logical guess as to the diagnosis is vegetative endocarditis of the aortic valve and probably the mitral valve, with chronic infarcts of liver, spleen and heart, possibly an old small infarct of the lung, and also in the kidneys, and a recent infarct of the heart involving the conduction system and causing death.

Discussion by Dr. R. J. Stroud, Tempe

There seem to be too many things wrong with this patient to make a diagnosis. There is no doubt an infection of some kind and he died with an anginal attack, but the spot of infection is obscure.

The salient points in diagnosis are: pain, really of seven months duration; pus in the urine and unaccounted for, constant; angina for two years; fever for five months; enlargement of heart for some time, and later murmurs; leukocytosis, not so high and not constant; anemia, more or less marked; pulse rate high; enlarged liver and perhaps spleen; x-ray showing joint changes in hips and spine. The first pain was felt as a sudden, severe stab over the left kidney. Hard to control, and with changes in the hip joints to x-ray. Was a lot better after being held rigid for four weeks. Evidently a suspicion of tuberculosis or other active joint change was thought of. Then the pain manifested itself in front and opposite the original pain, and later the pain was referred to the spine. Pus in the urine means some infection, and while the hospital examination does not say so, it infers that pus was still present but that no blood was found. No sediment test of the urine was done to find organisms and no culture was made. Constant pus in the urine suggests tuberculosis, or often streptococcus infection, with colon present or absent, at times with both. Fever for five months suggests the three ueual things that cause long continued fevers: tuberculosis, streptococcic infection, and typhoid. As no intermittent fever is described, malaria and other intermittent fevers are ruled out. There has not been any sign of lung tuberculosis and x-ray did not reveal any in the spine. The blood shows anemia but it is secondary. There is enlargement of the heart, presuming an infection, with probably streptococci at an earlier age; and the fact of inflammatory arthritis shows a focus of infection could be present even though not again affecting the joints. The heart murmurs could well be due to myocarditis and still not rule out endocarditis. There are definite joint changes, especially of the spine, showing the effect of some organism, again probably streptococcus. The enlargement of the liver and spleen could mean low-grade infection as well as being the only signs of heart failure. The white blood count is that of a low-grade infection and the lower counts may look like tuberculosis. The real cause of the fluctuation could be a lessening of resistance with periods of ability to increase the leukocytosis, a usual thing in septicemia. Several things are missing. The blood was not tested by culture, neither was the urine. From the above, the best guess is streptococcic infection, probably of the heart valves, with later spread to other organs, and the joints. Septic endocarditis. Septicemia, either from above or from some focus not discovered.

Discussion by Dr. Robt. S. Flinn, Phoenix

The presenting symptom in this case is prolonged unexplained fever. Endocarditis is one of the chief causes of fever of this variety. The appearance of acute arthritis during the course of the fever is of distinct diagnostic significance. The history of an attack of severe left upper quadrant pain strongly suggests infarction of the spleen or kidney. The development of the valvular murmurs which increase in intensity as the condition progresses may be said to furnish final confirmation except for the item of a blood culture, which is almost invariably positive in these cases.

It is true that this case does not present all the classical signs of subacute bacterial endocarditis. The tender sternum, the petechiae, and the erythematous nodules are lacking. Repeated examinations have failed to show the presence of red blood cells in the urine. However, one frequently sees cases of endocarditis in which arthritis is a frequent and dominant feature. The infecting organism is usually the green streptococcus. Petechial hemorrhages are rare, but infarction of the spleen and kidneys is common. As the disease progresses the arthritic manifestations become less prominent, and the heart murmur, which appears late in the course of the disease, increases rapidly in intensity. There is usually a moderate leukocytosis; anemia is usually marked. Endocarditis is not the only cause of prolonged irregular fever and several other conditions must be considered. Miliary tuberculosis might easily produce such a fever as this. The physical examination of the lungs does not help us much. What we should like to see is the x-ray plate, if, indeed, one was made. A moderate leukocytosis is the rule in tuberculosis. A heart lesion, however, is rare. Typhoid fever, malaria and pyelitis must also be ruled out. There is little evidence on which any of these three conditions could be considered. Every differential diagnosis must mention syphilis as the probable cause. Prolonged fever in syphilis is rare. In tertiary syphilis in which gummata of the liver are present, irregular fever is often present, and may simulate to a great extent septic endocarditis. We have several reasons for believing that this man may have had lues. The attacks of angina, the aortic valve lesions, the large liver are all suggestive of a luetic infection. The Wassermann is not recorded, and that valuable bit of evidence is lacking. It must be remembered that the Wassermann reaction is frequently negative in syphilitic aortitis. He

must be extremely timid, who will not diganose syphilis without a positive Wassermann, but in my opinion a diagnosis of bacterial endocarditis is most tenable. With a history of large spleen and liver together with a marked anemia one must think of the various forms of splenic anemia, such as Banti's disease. A large mass in the left upper quadrant may be due to a hypernephroma even in the absence of urinary findings, as I have learned to my sorrow.

It would seem, then, that the diagnosis rests between bacterial endocarditis and syphilis. In favor of endocarditis we have a previous history of rheumatic fever, arthritic manifestations, prolonged unexplained fever, one petechial hemorrhage, probable splenic infarction, marked anemia, and aortic insufficiency developing late in the disease. The development of an aortic lesion in a man past fifty with a previous history of angina is strongly suggestive of syphilis. The Wassermann reaction is less reliable in aortitis than in any other condition. Syphilis easily causes such a condition as this. However, in my opinion the case is more suggestive of an endocarditis, which is, therefore, my diagnosis.

Diagnosis: Bacterial Endocarditis (Subacute?)
Aortic insufficiency.
Splenic Infarction.
Osteo-Arthritis.

Discussion by Dr. Howell Randolph, Phoenix

Attention is first called in this record to symptoms pointing to some pathological condition of the back, which in the light of positive x-ray findings may be considered to be due to a hypertrophic arthritis of the spine. The cardiac manifestations fit into the picture of three different types of heart disease: hypertensive arteriosclerotic, syphilitic and acute endocarditis following a chronic endocarditis. Pain is the most prominent of the cardiac symptoms and is probably due to an actual change in the cardiac vessels rather than coronary spasm. This change is due either to embolism or to arteriosclerotic changes with atheromata possibly syphilitic. Septic temperature, leukocytosis, anemia on top of murmurs corresponding to pan-carditis, point strongly toward septicemia with the primary focus located in the heart, and this is supported by petechial hemorrhage into the fundus of the left eye, liver enlargement with tenderness and enlargement of the spleen. If the Wassermann reaction was positive, I should think more of syphilis as the fundamental pathology, but even then it would seem unusual to have the embolic phenomena on the basis of the cardiac syphilis. I do not think there is any evidence supporting a diagnosis of malignancy. Some blood dyscrasia with severe anemia might be considered, but there is nothing in the whole blood picture to support anything of this nature.

Diagnosis: Subacute bacterial endocarditis superimposed upon an old endocarditis. Hypertrophic arthritis. Cause of death, coronary embolism.

Discussion by Dr. Richard Cabot

(In part, from above journal, p. 32).

The arthritis involved both hips, yet the symptoms were all one-sided. You know that whooping cough is sometimes very serious in old people. People laugh at you; then sometimes you die. I assume that the pain three months and a half before admission was in the same region that we were told about in the beginning, the left side of the back. Swelling and redness of one hand is a queer combination with the other symptoms. There is very little to go on in that history. Things seemed to be localized in the left side of the back and to some extent in the front. One thinks of renal tumors and other tumors of course at his age. But I have still only the vaguest ideas.

The heart examination shows another case of aortic regurgitation. Yet presumably he had a normal heart four months bfeore he entered. That is a surprising state of things. Very few cases of heart trouble at his age come on in four months. Ordinarily such an electrocardiogram as he showed goes with some defect of transmission. That is a pretty big liver. I suppose the record means that the mass moved with respiration. They seem to have felt a tumor in the region where there have been symptoms. There was a well marked secondary anemia.

Dr. George W. Holmes: This man's spine shows marked proliferative changes, and there are similar changes around the hip joints. There is some narrowing of the joint spaces and some punching out of the joint margins, so that there may be some erosion of the cartilage as well as proliferation. There is no bone atrophy. His chest is of interest. The heart shadow is very much enlarged. I do not think that film was taken at a seven-foot distance. It looks as if it were taken with the patient lying on his back, and therefore there is probably a great deal of magnification. The enlargement is all to the left. I think we are safe in saying he had left ventricular hypertrophy. The aortic knob is prominent. There was good respiratory movement of the diaphragm on the right. Sometimes a bad film gives us more information than a good one. The left base was hidden by the shadow of the heart, so that from the x-ray we cannot tell whether or not he has any pathology in the lower left lung. What little evidence we have is against it. The signs they mentioned may have been due to enlarged left ventricle. As to whether this change in the size of the heart is due to aortic regurgitation or hypertension I should not be justified in saying. If it is due to aortic regurgitation, whether it is rheumatic or luetic we could not say. We have no evidence I should say of luetic aortitis. Beneath the clavicle there is an area of increased density with a sharply defined right margin. It does not displace the trachea and apparently is not in the lung. This film is taken with the patient on his back. There is little rotation present, and things are distorted. The shadow may be of no importance.

The kidneys are not visible, but that does not mean anything in particular. The edge of the liver is shown below the ileum. It is thrown down somewhat by the way the film is taken, but there is some evidence of enlargement of the liver. There is no evidence of stone in the kidney. I think a stone would show.

Dr. Cabot: My impression is that the hypertrophic arthritis is simply what might be expected in a man of his age. The particularly valuable part of the x-ray findings seems to be positive evidence of a big heart and the negative evidence as to aneurysm.

DIFFERENTIAL DIAGNOSIS

Dr. Cabot: I think this is an extraordinarily interesting case. It seems to me it is very intriguing in several ways. He was examined four months before he came and the heart was found to be normal.

He had not had an acute rheumatism between then and now. He has a type of chronic degener-

ative arthritis which cannot in my opinion have any relation to the heart.

Syphilitic aortitis does not develop in four months. It takes a much longer time.

Hypertensive heart trouble cannot develop in four months.

What is immediately suggested is subacute bacterial endocarditis, which can perfectly well develop in three or four months and can go on to produce aortic regurgitation and hypertrophy of the heart in that time, though it seems rather rapid. He had fever and secondary anemia, which would go with that diagnosis prefectly well. What about the tumor? If this is a subacute bacterial endocarditis and its results we have to say he has septic emboli which have set something going in the spleen or the left kidney so as to produce an abscess or abscesses in the spleen or the left kidney or both. There is not enough evidence to determine which of these two organs it is, if it is either of those two at all. The record insists twice on the tenderness of this mass, as if infection might be burrowing out beyond the capsule of the spleen or kidney. If it is not that we have to make two diagnoses, one on the heart and one on the spleen or kidney. Statistics show that we are more often right when we account for everything by one diagnosis. We cannot possibly bring aortic regurgitation and the tumor down in the region of the spleen or the kidney under the same heading except through the diagnosis of subacute bacterial endocarditis.

We are never sure of that diagnosis without two complications, bacteremia and definite embolism. The latter may have occurred in the spleen or the kidney. He may also have had it in the retina, in the heel or in the neck, though it is rather hard to imagine exactly where. The negative blood cultures are not of much importance when we consider how large the total blood mass is. Can we account for the fever as a result of a malignant tumor? Yes, especially necrotic tumors often give fever like this. But that would not explain anything about the heart. The thing I feel surest of is a septic cardiac lesion, bacterial endocarditis. If he had that it can account for everything else he had. I think it is a safe diagnosis,—subacute vegetations of the aortic valve (and possibly on the other valves), hypertrophy of the entire heart, especially of the left ventricle, and some septic lesion of the spleen or left kidney; nothing else.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Angina pectoris.
Subacute bacterial endocarditis.
Infectious arthritis.

DR. RICHARD C. CABOT'S FINDINGS

Subacute bacterial endocarditis of the aortic valve, possibly of other valves; aortic regurgitation.

Septic infarct with abscesses in the spleen or the left kidney.

Hypertrophy of the heart.
Passive congestion of the liver.
Possibly coronary occlusion.

Pathologic Discussion by Dr. Tracy B. Mallory
(P. 33, above journal).

This man had a well marked subacute bacterial endocarditis on top of a slight old rheumatic lesion of both the mitral and the aortic valves, not one that I think would necessarily have caused any symptoms at all. The aortic valve was simply eaten away by the acute process. It is obvious from the gross findings why that regurgitation should have developed with such suddenness. The fresh vegetations were also found on both valves, though only on the aortic did they cause deformity. There was also quite an acute myocarditis.

There were septic infarctions in the spleen and both kidneys, although the softening was limited in each case to a small area at the center of the lesion. Whether the pus in the urine four or five months ago can be explained by the old renal infarct I do not feel at all sure. The mass felt, I feel sure, was the spleen. It weighed 400 grams. The kidneys were not large. The liver was not enlarged. It came down 10 centimeters below the costal margin, yet it weighed only 1500 grams. The reason for that is that he had the sort of liver we have rarealy seen for twenty years, the so-called "corset liver." It was very long and very narrow. There was a marked, rather acute terminal pulmonary edema. There was of course a very marked degree of arthritis.

Recent opinion on the whole is that the etiology of a rheumatic endocarditis and a later bacterial endocarditis is the same. Both start with the presence of organisms on the valve flaps, usually immediately on the line of closure, not on the actual margin of the valve, presumably the area at which the trauma occurs. In a very acute stage of rheumatic endocarditis one can find the organisms, but they have very seldom been seen, probably not in more than a dozen cases. In the later stages of rheumatic lesions we can never find the organisms. The difference between rheumatic endocarditis and subacute bacterial endocarditis depends not on the type of infection on the valve so much as on the general immune reaction of the body. In a rheumatic case the individual is always hypersensitive to streptococci. In bacterial cases the individual never is. From the immunologic point of view he is immune, but it is a peculiar type of immunity which kills the individual. It seems as if we ought to have a new term for it.

ANATOMIC DIAGNOSES

1. Primary fatal disease.

Chronic rheumatic endocarditis of the mitral and aortic valves; aortic regurgitation.

Subacute bacterial endocarditis of the mitral and aortic valves.

2. Secondary or terminal lesions.

Acute myocarditis.
Dilatation of the heart.
Septic infarctions of the spleen and both kidneys.
Hypertrophy of the spleen.
Pulmonary edema.
Arteriosclerosis.

CASE DISCUSSION

(Case of Hypertension With Sudden and Unexplained Death).

(Case Records of Mass. Genl. Hosp., from Boston M. & S. Jour., Jan. 19, 1928, p. 1365).

Case Record

A married Englishwoman sixty-two years old entered the hospital November 14 complaining of dyspnea and edema.

Apparently she had been exceptionally well all her life until about two years before admission, when she found she got out of breath much more easily than formerly and was easily fatigued. There was no marked change until ten months before admission, when she caught a bad "cold" which began

as an "asthmatic attack" and lasted all winter. The "asthma" lasted two weeks and was for several hours at a time relieved by inhaling "asthma powders." All winter she had dry cough, usually much worse at night, sometimes waking her and making her sit up. The orthopnea appeared however to have been paroxysmal. Her dyspnea became more pronounced. During the spring, from seven to three months before admission, the cough and dyspnea improved somewhat. Three months before admission the dyspnea again increased in severity. During the summer she had to spend much of her time on a couch. Seven weeks before admission she called a doctor because of dyspnea. He prescribed digitalis, rest and veronal. Six weeks before admission she noticed pitting edema of the legs, loss of appetite, slight constipation and mahogany colored urine. October 8, five weeks before admission, her physician sent her to the Consultation Clinic of this hospital. Examination at that time showed her lips slightly cyanotic, lungs dull at the bases with moist rales at the angles of the scapulae, more on the right, diminished resonance and fremitus at the right base. Gallop rhythm, heart otherwise as upon admission to the wards. Blood pressure 140/120. Radials slightly thickened. Weight 158 pounds. As there was no room in the wards at that time her physician was advised to enforce absolute rest and full digitalization. During the month's interval she had taken a grain and a half of digitalis at first three times a day, then twice a day for most of the remaining time, occasionally only once a day. She did not, however, follow orders for strict rest, but had done a little housework.

Her family history was good. She had been remarkedly healthy all her life. Except for two or three miscarriages, an operation for gallstones twelve years before admission, and arthritis of the finger joints noted seven years before admission, her past history was negative. Three years ago she weighed 165 pounds, her maximum weight. At present she weighed 158 pounds.

Clinical examination showed slightly obese woman (weight 147½ pounds) lying in a Gatch bed with slight pallor, cyanosis of the lips and fingers and considerable orthopnea. Teeth poor; upper teeth false. Chest expansion fair. Lungs clear and resonant. Location of the apex impulse of the heart not recorded. Percussion measurements, left border 13 centimeters, mid-clavicular line 8, right border 4.5, supracardiac dullness 5. Heaving impulse. No murmurs or thrills. Loud second sound. Fibrillation. Electrocardiogram showed auricular fibrillation, rate 120, low T all leads, slight left axis deviation. Blood pressure 180/105, pulse deficit 8 to 43, only twice less than 20. Abdomen full. Old median gallbladder scar. Liver three finger-breadths below the costal margin, slightly tender. A questionable very small amount of free fluid. Slight pitting edema of the feet, lower legs and sacral area. Pupils, fundi and reflexes normal.

Urine: amount not recorded, cloudy at three of five examinations, dark at three, the slightest possible trace to a large trace of albumin at all, specific gravity 1.020 to 1.032; 2 to 30 leukocytes per high power field at all. Renal function 15+ per cent. Blood: leukocytes 20,500 to 10,600, polynuclears 87 to 800 per cent., 6,830,000 to 4,600,000 reds, hemoglobin 80 per cent., moderate achromia, slight variation in size, shape and staining, a few macrocytes with abundant hemoglobin, one nucleated red cell found, platelets normal, reticulated cells 2 per cent. Wassermann negative. Non-protein nitrogen 39. Fasting blood sugar 108 milligrams.

A portable x-ray plate showed the heart shadow considerably enlarged in all diameters. Both bases were hazy, obscuring the outline of the diaphragm. The entire right chest was less radiant than the left.

Temperature 98.8° to 100°, rectal. Apex pulse 77 to 123. Respirations 26 to 38.

Under rest and codein the patient was much more comfortable the day after admission. November 16 she was put on digitaline Nativelle, a French preparation of digitalis. After taking sixteen tablets (approximately 12 grains of the powdered leaf used in this hospital) she became nauseated. Except for anorexia she was feeling much better than at admission. November 18 she was given no digitalis. She felt and ate better. The morning of November 19 she said she felt very weak and a little more dyspneic than usual. At noon she suddenly sat up in bed, gasped, became very cyanotic, and dropped back dead.

Discussion by Dr. Orville H. Brown, Phoenix

The salient points of this record are: A woman, well up to the age of 60, developed dyspnea and undue fatigability. At 61, following a severe cold she became asthmatic, remaining so throughout the winter. The asthma improved but cough remained and the dyspnea was severe. Edema of legs developed, with loss of appetite and mahogany-colored urine. She was given digatalis and evidently she improved, as she was able to go to a clinic for examination about six weeks before death. At that time she had moderate cyanosis, dullness and rales at bases of lungs, gallop rhythm of heart, blood pressure 140/120, moderate arteriosclerosis, and moderate obesity.

Five days before death she was pale, cyanotic and orthopneic. Heart was considerably dilated, with a heaving impulse, and fibrillation. Electrocardiograph showed auricular fibrillation, rate 120, low T from all leads, slight left axis deviation. Blood pressure was 180/105. Pulse deficit was 8 to 43. Liver was enlarged and tender. There seemed to be a small amount of fluid in abdomen and she had pitting edema of feet, legs and sacral area. The urine was cloudy and at times dark, with traces of albumin and pus. Renal function was 15 per cent. Nonprotein nitrogen was 39. The leukocyte count ranged from 10,600 to 20,500 with 80 to 87 per cent polys. The red cells had moderate achromia, with variation in size, shape and staining; there were a few macrocytes with abundant hemoglobin; one nucleated red cell was found; three per cent of reticulate cells. An x-ray disclosed a heart enlarged in all diameters, and the bases of the lungs hazy, with entire right lung less radiant than left. The temperature was 98.8° to 100° rectally, respirations 26 to 38, and apex pulse 77 to 123. The patient improved under digitalis. Four days after admission she felt weak and dyspneic, and at noon sat up in bed, gasped, became deeply cyanotic and died.

There are a number of interesting features in this record. Perhaps the most interesting point is the sudden death. The patient was apparently improved over her condition a few weeks previously, and yet something happened to produce instantaneous death —evidently from the heart. Of the possible causes of such a death, I think of a rupture of an aortic aneurysm, and ruptured heart, angina pectoris,

a ball thrombus from a dilated auricle, and a coronary embolic thrombus. I rule out the aortic aneurysm because none was found by the roentgenogram of the chest. A ruptured heart is not so easy to eliminate. It is my opinion, however, that deep cyanosis would not likely have developed, because the blood returning to the heart by the larger veins would be emptied freely into the chest and probably cardiac contractions would continue for a time, discharging blood into the aorta. Ball thrombi are prone to form in dilated cavities; this patient had fibrillating auricles, which means uncontracted auricles. The heart was dilated in all dimensions, both by physical and roentgen examinations. Conditions conducive to the formation of intra-auricular thrombus existed. A ball thrombus from the right auricle would likely lodge in the tricuspid area and, if not there, in the pulmonary artery. From the left auricle one would probably stick in the mitral area and, if not there, in the aorta. In either event, the flow of blood would be dammed. Cyanosis would be extreme and prompt. Death would be instantaneous. Digitalis might predispose to a contraction of the auricles and a development of the thrombus. It seems to me that a ball thrombus might explain the chain of events in this case.

A coronary embolism from a coronary thrombus may be so large as to occlude a large part of one coronary vessel, and produce instant paralysis of the heart muscle supplied thereby. This patient was of an age to have arteriosclerosis. The heart was dilated so that the sclerosed coronaries must have been considerably stretched, especially in the unsclerosed stretchable areas. All of this would be conducive to the formation of thrombi. Angina pectoris attacks produce sudden death by prompt stoppage of the heart muscle contractions, probably by producing muscle cramps. There was no history that this patient had had anginal attacks. She had, however, a badly damaged cardiac musculature and there always has to be the first attack. The first attack may result in death. Overworked hearts sometimes suddenly cease without any of the preceding causes, probably analogous to angina.

Death from angina or from a coronary embolism would probably produce deep cyanosis, and instant death. I can see no evidence in the record to cause me to decide between the last three possibilities; i. e.: ball thrombus, coronary embolism, and angina. My conclusion, because of its relatively greater frequency, is that this death was from coronary embolism.

Cardiac failure had existed for two years or longer. The outstanding finding was that the heart was much enlarged in all dimensions. An enlarged heart, if discovered by physical examination, is always a dilated heart. It may also be hypertrophied. The custom of speaking of an enlarged heart as a hypertrophied heart, simply because it is found large, is wrong. A cardiac muscle may be thickened as much as ten or even fifteen millimeters and even one most expert on physical diagnosis will not be able to say with assurance that such a heart, if undilated, is enlarged. Hypertrophy, however, exists commonly with dilation. A dilated heart is usually an overworked heart and overwork of a heart will usually produce hypertrophy of greater or less degree. This heart will probably be found to be both dilated and hypertrophied with the degree of dilation far exceeding the hypertrophy unless the heart stopped in extreme systole, in which event the dilation might not be evident. An overworked cardiac muscle results from a variety of causes, chief among which are valvular lesions, and hypertension; obesity, myocarditis, overwork and strain, however, may be the chief or important contributing factors. There may be neither valvular lesions nor hypertension and yet extreme dilation. A heart caused to do work far in excess of that to which it has been trained, will dilate. If again it is caused to do extreme work before it has contracted to normal, it may further dilate or at least it will be prevented from returning to normal size. When excessive work continues indefinitely, with inadequate rest, the heart becomes chronically dilated. At the same time, hypertension or valvular lesions, or both, act as contributing factors to increase the dilations. In the case under discussion hypertension was present and probably had long been in existence. The low pulse pressure indicated the failure of the cardiac muscle to properly do its work. The dyspnea, the enlarged tender liver, the lung edema, the cyanosis and the general edema are further evidence of a failing myocardium. Fibrillation, it is now held, results from poor conductivity of the cardiac tissues because of the severe dilation and stretching of the tissues. A high grade of pulse deficit is a serious omen. A mitral stenosis is likely to cause dilation of the left auricle and, hence, readily lead to fibrillation. The two most common factors leading to fibrillation are mitral stenosis and senescent heart. When the auricle is fibrallating a mitral stenosis may give neither a murmur nor a thrill. Therefore, this case may well have had a mitral stenosis. The strain placed upon the left auricle and, in turn, upon the lung and the right ventricle, produces lung edema and dilation of the right heart. Both of these had probably existed in this case for a considerable period, as evidenced by her history. This is additional support to the theory of mitral stenosis. The low pulse pressure is evidence, too, that the blood came through the mitral orifice slowly, as well as proof of a weakened left ventricle. The electrocardiogram shows nothing more than slightly abnormal altered currents with left-sided hypertrophy in excess of the right.

The asthma is an interesting phase of the symptoms on which to speculate. Probably this asthma may properly be termed cardiac because of the preponderating part played in the dyspnea by the failing heart. Any dyspnea has a tendency to develop into asthmatic dyspnea. A severe cardiac dyspnea produces edema and passive congestion of both the lungs and the bronchi. The dyspnea produces forceful expiration and this contributes to a damming back of both blood and lymph into the bronchi during expiration. With congestion of both blood and lymph into the bronchial mucosa a good bed is prepared therein for infection and for sensitization processes. A person who has been seriously ill for a prolonged period is predisposed to digestive disturbances and these readily lead to sensitization phenomena from food. The periodic nature of the asthma suggests that a sensitization process existed. Probably the administration of digitalis relieved the dyspnea sufficiently so that the decided asthmatic character disappeared under that treatment. The kidneys in this case were undoubtedly damaged by the poor circulation and arteriosclerosis, as evidenced by the trace of albumin, the low renal function and the increased nonprotein nitrogen. The pus cells in the urine would scarcely produce the amount of albumin which existed. It is not disclosed whether the urine was obtained by

catheterization, so we can not speculate as to the meaning of the pus cells in the urine. The high leukocyte count and the roentgenograms of the lung probably indicate a beginning pneumonia process. The blood smear shows rapidd blood regeneration as evidenced by the nucleated red cell, the macrocytes, and the cells of variable size and shape, and the reticulate cells. The nucleated cell and the reticulate cells show the urgent demands being made upon the blood-forming tissues. The reticulate cell is a link between the nucleated cell and the erythrocyte. In the cytoplasm of certain cells there is a granular material strung together in the pattern of skins. These make the reticulate cells. In normal blood they never constitute more than 0.8 per cent of the erythroytes. The three per cent in this blood is further proof of rapid blood regeneration. The moderate achromia proclaims anemia. There must have been a severe grade of anemia existing in this case over a considerable period of time. An erythrocyte count and a hemoglobin estimation, would have been helpful in this connection.

As to the type of anemia, one can only speculate. I think especially of pernicious anemia; there are however, no symptoms recorded pointing to myelitis. Therefore, I must conclude that the anemia was of the secondary type, due to chronic infection (the mouth condition was not good), hypothyroidism (she was obese), or to her long-existing poor circulatory condition, or to an idiopathic condition. The fluid suspected of being in the abdomen and the enlarged tender liver propably mean nothing more than cardiac failure. Such conditions, however, result of cirrhosis, abdominal malignancies, and so forth. I see, however, no reason to give these more than passing notice..

Diagnosis:

Immediate cause of death: Cardiac failure, probably from coronary embolism.

Secondary causes: Cardiac dilation and hypertrophy. Mitral stenosis. Bronchial pneumonia. Arteriosclerotic kidney (mild). Secondary anemia.

Discussion by Dr. Frank J. Milloy, Phoenix

I believe we can be reasonably certain that this is a case of heart disease. Of the three kinds of heart disease, rheumatic, syphilitic and hypertensive, I believe it is more likely to be the last. There is nothing in the history to suggest syphilis, and nothing to suggest rheumatic heart disease. It is also rather late in life for a rheumatic heart to show up. So that leaves hypertensive disease, which is by far the most common cause of chronic heart disease today. There apparently has been a gradual onset of cardiac decompensation over a period of two years. The asthma was very probably cardiac in origin, aggravated at times by acute bronchitis. The heart measurements indicate a large heart. possibly at least 500 or 600 grams, and the systolic blood pressure now varying from 120 to 180 means that the patient probably had a much higher pressure before decompensation developed. One unusual occurrence is the absence of any evidence of arteriosclerotic nephritis. which is usually present in hypertensive heart disease. The wide range in specific gravity, from 1020 to 1036, and complete absence of any degree of anemia and normal NPN, leave nothing to indicate much renal damage. The low phthalein excretion is the result of passive congestion caused by decompensation.

The problem in this case is to describe the mechanism of sudden death. We have here a definite case of cardiac decompensation in a woman who has been digitalized and who was apparently very much better, and then, with very little if anything wrong, sudden death occurs. This is not unusual. There are three ways in which sudden death may occur in such cardiac cases. In these large hearts, and especially when fibrillation has been present, the left heart is frequently the seat of a large thrombus; when the heart muscle is whipped up by digitalis and made to contract, it may throw off an embolus from this thrombus and produce a cerebral embolus with sudden death. This is what occurs in sudden death from quinidine sulfate. This is probably not the case here, however, as the patient felt weak and dyspneic the morning of the day she died; there would be no such symptoms of an impending cerebral embolus. The second cause of death is by coronary occlusion; the absence of pain is against coronary disease, but pain is not always present; the electrocardiogram usually shows more evidence of coronary disease than is shown here. I do not see how a coronary occlusion can be either proved or ruled out in this case, except by autopsy. The third mechanism of sudden death is very liable to occur in these cases where auricular fibrillation has been present and there has been a disturbance in the conduction mechanism. The disturbance in conduction may produce a ventricular fibrillation. Death generally occurs very soon. It is diagnosed only if an electrocardiogram is being taken just before such a sudden death. An acute dilatation of the left ventricle occurs, producing death; there may be a feeling of weakness and dyspnea preceding such an occurrence. I believe this was probably the cause of the death in this case.

Diagnosis: Hypertensive heart disease. Hypertrophy and dilatation.

Discussion by Dr. Richard Cabot

(In part, from above journal)

Of course people are very melodramatic in their phrases about the color of urine, as they are about other matters in medicine. If it really were the color of mahogany, it might be a very serious condition and would not be at all likely to come from passive congestion. But one wonders if it is any more than ordinary high colored urine. Examination of the lungs shows all the ordinary signs of passive congestion, probably with some hydrothorax.

What is a heaving impulse? How do you recognize it?

It is a question of the slowness with which the tissues rise. The ordinary impulse comes and goes quickly. The heaving impulse comes slowly and stays longer. Of course the word heaving is not an exact scientific word, but if you are thinking of the kind of thing that goes with hypertrophied heart it is a slow, powerful impulse which may be over a large area or not, but which is ordinarily not called heaving it is sudden. Your description might correspond to the same thing, but you speak especially about the end, about which I have not any particular impression. Heaving impulse is an important thing if you are in doubt about cardiac hypertrophy. It often helps you very much. Only you ought to have it demonstrated to you a number of times. I do not know just why they took that blood sugar. Some of the clinical men are very much interested in the relation between gallbladder disease and diabetes, and it is presumably the fact that she has previously had gallbladder disease.

DIFFERENTIAL DIAGNOSIS

The record reads like that of a straight cardiac case. Certainly there is nothing to prove damage to the kidneys. Here is a woman of sixty-two with cardiac trouble, presumably of the arteriosclerotic or hypertensive type. We have a big heart proved by x-ray and suggested otherwise. We have a moderate amount of passive congestion. We have nothing in the earlier history to make us think anything is wrong with the heart, and that is what we should expect in the type of heart trouble commonest at her age. I do not see how anybody can reason out any other diagnosis than that of hypertension, presumably with arteriosclerosis. I think there will be a big heart, especially the left ventricle, normal valves, kidneys not showing nephritis, but showing probably some involvement in the general arteriosclerotic process which is likely to occur in a case like this.

The blood is a little queer. There seems to be a little secondary anemia judging from the smear, and yet from the figures given you could hardly say so. I do not believe it has any special bearing on the case.

The only thing we can discuss is, Why did she drop dead suddenly? And if you notice how often we do not explain that even after death you will not feel quite so enthusiastic about arguing about it as I used to years ago. More than half the cases of sudden death that I have discussed here have not been explained at necropsy. We say the commonest causes are cerebral hemorrhage, cardiac infarction and pulmonary embolism; but more often than not we do not find any cause. So I should say the first probability is that we shall not find any cause of sudden death. Second, it is perfectly possible she had a cardiac infarction. She had no pain, but perhaps she died too quickly for it. Third, it is possible that she had a pulmonary embolism. She had no symptoms of it, but if embolus was in one of the larger branches there is no reason why there should be symptoms of it. She was cyanotic. She died quickly, with no indication of paralysis. I do not see how we can say cerebral hemorrhage. I can not remember a case of cerebral hemorrhage that died as quickly as this. My impression is that the quick deaths are not often proved to be due to cerebral hemorrhage. So I should say the chances are against cerebral hemorrhage, but that is all I can say.

I think that Dr. Mallory will say that she had arteriosclerotic hypertrophied heart, general passive congestion, some arteriosclerosis of the kidneys, but no nephritis.

As to the possibility of an acute infection as suggested by the leukocytosis, there is nothing particularly worth while to say. There are no physical signs to tell use what infection if any is present. but we know it may be one of two or three without physical signs. As to the cause of sudden death, I have nothing to add.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD).

Arteriosclerotic and hypertensive heart disease.
Congestive failure.
Auricular fibrillation.
Coronary occlusion?

DR. RICHARD C. CABOT'S DIAGNOSIS

Arteriosclerotic hypertensive heart.
Chronic passive congestion, general.
Arteriosclerosis of the kidneys.

Pathologic Discussion by Dr. Tracy Mallory
(From above journal, p. 1367).

The heart weighed 500 grams,—considerably hypertrophied. The valves were entirely negative except for slight sclerotic thickening at the base of each of the aortic cusps.

The coronary arteries were entirely negative. The myocardium showed no sign of infarction. The aorta showed very little arteriosclerosis.

The lungs showed a slight degree of emphysema and considerable chronic passive congestion.

The peritoneal cavity contained considerable fluid, and there was evidence of the old operation in the form of marked adhesions in the gallbladder region.

The gallbladder was still present and presumably the stones had been removed without amputation of the gallbladder.

The liver showed very marked longstanding chronic passive congestion, as did the spleen.

The kidneys weighed 310 grams. The cortex measured from five to seven millimeters. The capsules stripped very easily and left only a few small irregular scars on the surface. The right kidney showed a firm white wedge-shaped patch about one centimeter across the base and extending down half a centimeter into the parenchyma,—the typical appearance of a kidney infarct of considerable standing, since it was not surrounded by a zone of hemorrhage, which we always find with fresh infarctions. So except for the infarcts and the slight degree of chronic passive congestion they were entirely normal kidneys.

Dr. Cabot: What was the cause of sudden death?

Dr. Mallory: None was found.

ANATOMICAL DIAGNOSIS

1. Primary fatal lesion.
   (Primary hypertension.)
2. Secondary or terminal lesions.
   Hypertrophy and dilatation of the heart.
   Chronic passive congestion of liver, lungs and spleen.
   Hydrothorax.
   Ascites.
   Infarct of the right kidney.
3. Historical landmarks.
   Chronic cholecystitis.
   Mucous polyp of the uterus.

CARCINOMA OF THE CERVIX UTERI. Cornelius Oliver Bailey, M.D., F.A.C.P., Dallas, Texas, Tex. State Jour. of Med., Sept., 1920, p. 350.

Thirty per cent of cancer in the female involves the uterus and 90 per cent of uterine cancer originates in the cervix, consideration of this lesion is of great importance. The earliest stages of the disease appear as (1) a hard nodule in the cervical lip, (2) papillary outgrowths from lip or canal, or (3) excavation or cauliflower growth. Cervical cancer involves the pelvic nodes in less than one-third of the cases. Treatment is educational and technical; from the technical standpoint, there is a twofold problem; eradication of the local lesion and maintenance of body resistance at the highest point of efficiency. The treatment and prognosis is largely dependent on intelligent study of the biopsy specimen, and no line of treatment is justified until a pathological report is available. Method of treatment advocated is usually by four to six thousand milligram hours of heavily filtered radium to cervix and broad ligaments; this is supplemented by medium wave roentgen ray in massive doses over the pelvis by cross fire distribution. Then a "follow up" system is essential to the proper handling of the cases.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.
Director, New Mexico Bureau of Public Health

ROCKY MOUNTAIN SPOTTED FEVER VACCINE

Through the courtesy of Dr. R. R. Parker of the Hamilton laboratory, the New Mexico Bureau of Health has secured a small quantity of Rocky Mountain spotted-fever vaccine. This will be kept in the refrigerator of the state laboratory at Albuquerque and will be available to physicians of the state for emergency use only (see paragraph 5 below).

Vaccine for ordinary prophylaxis may be obtained by direct request to the laboratory at Hamilton, Montana. The following points regarding the use of this vaccine are emphasized by Dr. Parker in a letter to the Director of Health:

"1. Requests for vaccine should be addressed to the Officer in Charge, United States Public Health Service, Hamilton, Montana.

"2. Each request for vaccine should specify either the number of persons to be vaccinated or the number of cubic centimeters needed on the basis of 4 c.c. to the person.

"3. Vaccine is furnished to physicians without charge and the charge for administration should be nominal.

"4. The vaccine is very expensive to manufacture and amounts requested should be limited to use which can be foreseen.

"5. Reports received at the Hamilton station suggest that if vaccine is administered soon after a bite by an infected tick a considerable amelioration of symptoms and shortening of the course of infection may result.

Physicians will therefore be justified in recommending the taking of the vaccine by tick-bitten persons as soon as possible after the bite is received.

"6. Therapeutic use of the vaccine after onset of symptoms is not recommended. In sections where the less fatal types of infection occur, some physicians have so used it with supposed good results, but the difficulties which prevent certainty on this point can be readily understood. Results in the highly fatal Bitter Root valley cases have suggested that in the more severe type of the disease, its use may even be harmful.

"7. It is especially requested that the Officer in Charge of the Hamilton laboratory be advised of any cases of spotted fever which may occur in vaccinated persons andd that as detailed a clinical record as possible be kept of such cases."

REPORT OF NEW YORK STATE HEALTH COMMISSION

The preliminary report of the distinguished public health commission that was appointed nearly a year ago by Governor Roosevelt is an important public document.

The Commission, in addition to its Chairman, Dr. Livingston Farrand, president of Cornell University, is composed of the following members: George W. Cottis, M.D.; Simon Flexner, M.D.; Hon. Homer Folks; Edward L. Keyes, M.D.; Mr. John A. Kingsbury; Mrs. Henry Goddard Leach; Hon. Henry Morgenthau: Matthias Nicoll, Jr., M.D.; Mr. John M. O'Hanlon; Thomas Parran, Jr., M.D.; William H. Ross, M.D.; Miss Katherine Tucker; and Linsly R. Williams, M.D.

The findings of such a committee must be attentively studied by physicians and social workers in every state. Although it is true that the local needs of New York State have been the subject of the commission's survey, nevertheless their estimate of the needs of their state will fit very closely our own estimate of public health needs in the Southwest. They are as follows:

"(1) Effective local health departments with qualifiedd personnel, (2) more effective service in the control of tuberculosis, cancer and the venereal diseases, (3) more comprehensive measures to reduce infant deaths and deaths among mothers from causes incident to childbirth, (4) further coordination of school hygiene with other health services, (5) better organization for the discovery and cure, hehabilitation and care of crippled children, (6) the extension of public health nursing throughout the state to reach the standards now in effect in a few areas, (7) protection of the public health through additional safeguards in the purification of water supplies and the prevention of stream pollution, (8) more attention to the growing problem of industrial hygiene."

Whole-time county health officers are recommended for all counties with a population of 30,000 or more and for smaller counties there should be available, without cost, the services of a district health officer or other member of the state staff who will act as a county health commissioner for one or more of these counties.

In discussing the qualifications needed for the position of county health officer, the commission believes that eventually a full resident year of study in public health should be required as well as public health experience on a whole- time basis. The commission realizes however that this standard cannot be enforced at the present time. Other recommendations are that the law be amended to provide for treatment of the venereal dis-

eases as a public health problem, irrespective of whether or not the individual case be indigent or infectious. A division of cancer control is to be established. Increased accommodation is to be provided for the tuberculous. In detail some of these recommendations are applicable only to a wealthy state but in general outline they set a model which every state will do well to study.

PUBLIC HEALTH NOTES

J. ROSSLYN EARP, Dr. P. H.
Director, New Mexico Bureau of Public Health Health Education

The following newspapers have asked for educational material on public health:

Independent, Mountainair, N. M.; Tribune, Lovington, N.M.; Journal, Albuquerque, N. M.; Portales Valley News, Portales, N.M.; Independent, Silver City, N. M.; Morning Dispatch, Roswell, N. M.; Chronicle, Carlsbad, N.M.; Advocate, Artesia, N. M.; Advertiser, Alamogordo, N. M.; La Bandera Americana, Albuquerque, N. M.; Gate City Sun, Raton, N. M.; Review, Grant, N.M.; Independiente, Las Vegas, N. M.

Physicians will oblige the Bureau by cooperating in the promotion of this service. Send us clippings of articles which appear. Send us your criticisms of the articles which appear and suggestions for future articles. If you local paper is not included in the above list, see the editor and ask him if he would not like to print feature stories prepared (in English or Spanish) by the Bureau. Ask if he could not use mats, purchased (including the copyright) by the Bureau from the American Public Health Association for the use of the newspapers of New Mexico.

New Mexico Public Health Association

The seventh annual meeting of the New Mexico Public Health Association will be held on May 11 and 12 at La Fonda Hotel in Santa Fe. Registration will be at 9 A. M. on May 11. An interesting program, leaving ample time for free discussion, has been arranged. Dr. Walter Clarke, chief of the division of medical measures of the American Social Hygiene Association, is coming from New York to discuss the control of venereal diseases in a rural community. Dr. Clarke was formerly editor of the section on venereal diseases of the International Journal of Public Health and was connected with the Social Hygiene Association for some years before he won honors in the medical school of Edinburgh University. He is certain to have valuable suggestions and counsel on a very difficult problem.

Membership in the New Mexico Public Health Association is not restricted to health officers. It is hoped that all physicians interested in the public health—and that should include all who subscribe to Article 2 of the Constitution of the American Association—will join the Public Health Association and make an effort to attend its annual meetings. A program will be sent to any physician upon request.

Immediately following the meeting of the State Public Health Association, the public health nurses of the state will hold their meeting at La Fonda Hotel on May 13th. Registration will take place at 9 A. M. An excellent program has been arranged and the nurses are urged to take this opportunity to get together for free discussion. A round table session will be held in the afternoon at which time all public health nurses are invited to present their suggestions and problems. Printed programs will be mailed upon request.

NOTICE TO ARIZONA PHYSICIANS

A History of Arizona Physicians and Arizona Medicine is in the course of preparation by a member of the editorial staff of Southwestern Medicine for the purpose of supplying data of Arizona medicine for inclusion in a History of Medicine of the United States now being prepared.

The task will be greatly lightened if each Arizona physician and former Arizona physician, will supply data on himself, following the outline given below.

The data on deceased physicians will be difficult to obtain unless those who have such data will be good enough to supply it.

It is to the interest of all that each physician supply full data upon himself and upon the deceased members he may have known.

Outline for data:

Name in full.

Date of birth. Father's occupation.

Place of birth. Father's nationality.

Name of father. Mother's nationality.

Places and dates of your residence.

Educational institutions attended and years; degrees obtained.

Church affiliation.

Date of marriage.

Wife's maiden name.

Names and ages of children.

License to practice in what states; dates of such licenses.

Places and dates of medical practice.

Medical publications, places and dates of publication.

Other medical activities.

Other activities and data of interest.

Specialty practiced.

Present address of residence; office.

Please enclose recent photograph, with data to Southwestern Medicine, Box 1587, Phoenix, Arizona.

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DR. WILLIAM C. TODT

The Arizona State Medical Association has lost a member unsurpassed in loyalty and faithfulness, in the death of Dr. William C. Todt of Kingman. For many years he served as councilor for the northern district, and left his impress by organizing and bringing to successful consummation the only councilor district meetings yet held in the state.

At the meeting in Phoenix, last year, he was made Vice President, and was in direct line for the highest office in the gift of the Association, when death claimed him on April 13th, at the home of his sister, in Phoenix.

While in poor health during the winter, most of which he spent in Phoenix, this outcome was not expected, and the entire medical profesion of the state mourns this passing of friend and confrere.

Formal resolutions to be introduced at the forthcoming meeting of the Association in Nogales will be published next month.

NOGALES, THE CONVENTION CITY

(By Chamber of Commerce)

Nogales, uniquely situated astride the borderline, is an ideal convention city, having 8,500 people on the American side with modern hotels, meeting halls and other accommodations adequate for such meetings, and with Nogales, Sonora, "just across the street," a modern city in many respects, but still a quaint Spanish town with many enjoyable attractions.

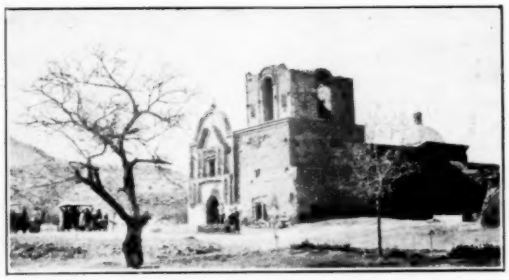
This city, the third largest in the state, commercially, is also the largest port of entry on the entire Mexican border and for that reason we are indeed glad to be the host to the many conventions which visit our city. We are glad to have people come to Nogales so that they may see for themselves the opportunities which we have to offer and also so that they may know of the trade area which our city serves.

The West Coast of Mexico comprises the States of Sonora, Sinaloa and Nayarit and has approximately one-half of the wealth of the entire Republic and one-third of the population. Numerous thriving enterprises in this area are either owned or financed by American capital who have established residences in Nogales.

Historically, the very spot where Nogales is now situatedd had been traveled over and explored before the Revolutionary war. Father Kino had established his chain of missions throughout northern Sonora and

one of the remnants of his wonderful piece of work still remains just nineteen miles north of Nogales. Tumacacori Mission is now a National Monument presided over by Mr. George L. Boundy, a full-time custodian, who will be more than glad to give the visiting tourists full information regarding this historical spot.

Four miles further north is the little town of Tubac, once a famous Spanish presidio from which Captain Juan Bastante de Anza led his troops and settlers to the Golden Gate, founding the city of San Francisco. Also, in this same little town was established the first printing press west of the Rockies and the first mining claim west of the Rockies was filed in Tubac. Over this very same



Tumacacori Mission, 19 miles North of Nogales on Nogales-Tucson Highway

ground Coronado led his gallant forces seeking the Seven Cities of Cibola. Arizona Highway No. 82 has been named in honor of this valiant explorer as the "Coronado Trail," and it is probably the most scenic route in southern Arizona. Along this same route are found Fort Buchanan, Fort Mason and other forts of a later period but established by Indian fighters and have long since been abandoned.

We, in Nogales, are indeed glad to have conventions visit our city. We want them to enjoy our many historical and scenic attractions, and if time permits, it would be our pleasure to make all necessary arrangements so that a short fishing trip down the West Coast of Mexico to Guaymas might be included. This would take in the capital of the state, Hermosillo. This route is to be known as the International Pacific highway and is now in the course of construction, approximately one mile a day being opened for travel and by September first, will be one of the best highways in Mexico and on a par with any gravel roads in Arizona.

Montezuma Hotel—Registration Headquarters

NEWS ITEMS

DR. CHARLES W. SULT, of Phoenix, took over the office of State Superintendent of Public Health on April first, succeeding Dr. R. J. Stroud, of Tempe. Dr. Sult, following his appointment, visited some of the health departments in eastern states in order to familiarize himself with their methods.

DR. R. B. RANEY, of Phoenix, has been appointed local registrar of vital statistics for the district comprising the city of Phoenix.

DR. W. K. WYLDER, of Albuquerque, attended the American College of Physicians in Baltimore the last week in March. This is the fifth consecutive meeting of the College which Dr. Wylder has attended.

DR. FRED G. HOLMES, of Phoenix, attended the conference and convocation of the American College of Physicians, in Baltimore, in March, where he was received into Fellowship.

ARIZONA PHYSICIANS IN AMERICAN COLLEGE OF PHYSICIANS

The Fifteenth Annual Congress of the American College of Physicians was held in Baltimore March 23 to 28, and was the largest and best meeting yet held by the organization. Dr. W. Warner Watkins of Phoenix, member of the Board of Governors of the College, and Dr. Fred Holmes of Phoenix, attended the conference. Fellowship was conferred on the following clinicians from Arizona, at this meeting: Dr. E. W. Phillips, of St. Luke's Home, Phoenix; Dr. Frank J. Milloy, of the Southwest Clinic, Phoenix; Dr. Fred Holmes of Phoenix; Dr. Orville H. Brown of Phoenix; Dr. Fred T. Fahlen of Phoenix; Dr. Harlan P. Mills, of the Pathological Laboratory, Phoenix; Dr. S. C. Davis, of the Thomas-Davis Clinic, Tucson.

There were also elected as Associates in the College the following clinicians of Arizona: Dr. Virgil G. Presson, Tucson; Dr. Jesse D. Hamer, of Phoenix; Dr. Robt. S. Flinn, of Phoenix; Dr. Howell Randolph, Phoenix.

The 1932 Conference will be held in San Francisco, the first time the meeting has come west of the Mississippi River. Dr. Watkins was re-elected member of the Board of Governors for another three year term. A summarized report of the scientific papers will be made in a forthcoming issue of this journal by Dr. M. K. Wylder, of Albuquerque.

ERRATUM

In our no'es published in the February issue (page 89) Vitamin E was erroneously given as the synonym for the P-P factor of Vitamin B. The proper synonym for the P-P factor is Vitamin G. Vitamin E is the factor apparently needed for full fertility in certain animals.

40th Annual Meeting
Arizona State Medical Association
Nogales, May 7, 8 and 9

Registration headquarters will be at the Montezuma Hotel. Every member, visitor and guest is requested to register promptly on arrival.

Scientific sessions will be held in the Armory. Morning sessions start at 10 o'clock and afternoon sessions at 2 o'clock.

No address or paper before the Association, except those of invited guests, shall occupy more than twenty minutes. The opening discussions are limited to five minutes and general discussions to three minutes each. No one shall speak more than twice on the same subject.

Papers read before the scientific sessions shall become the property of the Association and shall be deposited with the secretary for publication in the official organ of the Association (Southwestern Medicine).

For the social entertainments, see the special announcements elsewhere in this program.

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*WILLIAM C. TODT - - - - - - - Kingman
Secretary:
D. F. HARBRIDGE - - - - - - - - Phoenix
Treasurer:
C. E. YOUNT - - - - - - - - - Prescott
Councilors:
G. F. MANNING (Northern District) - Flagstaff
W. WARNER WATKINS (Cen. Dist.) - Phoenix
C. A. THOMAS (Southern District) - Tucson
* Deceased.

Committees

Committee on Scientific Work:
HARRY A. REESE, *Chairman* - - - - Yuma
Local Committee on Arrangements:
A. L. GUSTETTER (*Chairman*) - - - Nogales
V. A. SMELKER - - - - - - - - - Nogales
E. C. HOULE - - - - - - - - - Nogales
I. S. GONZALES - - - - - - - - - Nogales
F. T. HOGELAND - - - - - - - - Nogales
CHAS. S. SMITH - - - - - - - - - Nogales
Southwestern Medicine:
ORVILLE H. BROWN, *Associate Editor* - Phoenix
D. F. HARBRIDGE, *Board of Managers* - Phoenix
J. M. GREER, *Board of Managers* - Phoenix
National Legislation:
R. J. STROUD - - - - - - - - - - Tempe
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R. D. KENNEDY - - - - - - - - - Globe
D. F. HARBRIDGE, *Secretary* - - - Phoenix

COUNCIL MEETING

Thursday, May 7th, 9 A. M.

HOUSE OF DELEGATES

Executive Session, Friday, May 8th, 9 A. M.
Executive Session, Saturday, May 9th, 9 A. M.
Open Meeting, Saturday, May 9th, 3 P. M.

Members of Council

President, J. MADISON GREER - - - - Phoenix
President-Elect, H. A. REESE - - - - - Yuma
Past President, SAMUEL H. WATSON - - Tucson
Treasurer, C. E. YOUNT - - - - - - Prescott
Secretary, D. F. HARBRIDGE - - - - Phoenix
G. F. MANNING - - - - - - - - Flagstaff
W. W. WATKINS - - - - - - - - - Phoenix
C. A. THOMAS - - - - - - - - - - Tucson

House of Delegates

Cochise County - - - - - - - - -	3
Coconino County - - - - - - - - -	1
Graham County - - - - - - - - -	0
Greenlee County - - - - - - - - -	1
Gila County - - - - - - - - -	2
Maricopa County - - - - - - - -	11
Navajo-Apache County - - - - - -	1
Pima County - - - - - - - - -	6
Santa Cruz County - - - - - - - -	1
Yavapai County - - - - - - - - -	2
Yuma County - - - - - - - - -	1
Mohave County - - - - - - - - -	1
Members of Council - - - - - - -	8
Total - - - - - - - - -	38 Members

PROGRAM

THURSDAY, 10 A. M.

Invocation:
REV. J. L. PATTON - - - - - - - - Nogales
Addresses of Welcome:
MAYOR HARRY J. KARNES - - - - - - Nogales
PRESIDENTE A. C. VILLASENOR, Nogales, Son. Mex.
Responses:
ROBERT FERGUSON - - - - - - - - - Bisbee
E. E. PRIEGO - - - - - - Nogales, Son. Mex.
Introduction of President-Elect:
President's Address:
HARRY A. REESE - - - - - - - - - - Yuma
Greetings:
T. J. MCCAMANT - - - - - - - - El Paso, Tex.
Fraternal Delegate of the Texas State Medical Association.
WM. L. BELL (*Guest*) - - - - - - - - Oakland
"What Constitutes a Modern Bone Surgeon"
JOHN H. WHITE - - - - - - - - - Phoenix
"The Healing of Myocardial Infarcts"
Discussion opened by
CHAS. S. KIBLER, Tucson.
R. K. SMITH - - - - - - - - - - - Tucson
"Prenatal Care."
FLOYD B. SHARP - - - - - - - - - Phoenix
"Birth Injuries to the New Born."
Discussion on papers of Drs. Smith and Sharp opened by
C. E. YOUNT, Prescott.
CHAS. W. BROWN (*Guest*) - - San Diego, Calif.
"Bronschoscopic Diagnosis and Treatment, Including Foreign Bodies." (Lantern Slides.)

FRIDAY, 10 A. M.

JOHN HOMER WOOLSEY (*Guest*) - San Francisco
"Surgical Problems of Usual and Unusual Gastric Lesions."
C. A. THOMAS - - - - - - - - - - Tucson
"Head Injuries."
Discussion opened by
R. B. RANEY, Phoenix.
JOHN W. FLINN (*Invitation*)
"Special Treatment of Pulmonary Tuberculosis."
Discussion opened by
SAMUEL H. WATSON, Tucson.
ORVILLE H. BROWN - - - - - - - - Phoenix
"Successful Treatment of Eczema, Urticaria, Angioneurotic Edema, Etc., by Dietary Regulation and Digestants."
Discussion opened by
R. A. WILSON, Tucson.
OSCAR S. BROWN - - - - - - - - - Winslow
"Trachoma" (Lantern slides.)
Discussion opened by
HARLEY YANDELL, Phoenix.
THOMAS BURGER (*Guest*) - - - - - San Diego
"The Newer Anesthetics."
A. P. KIMBALL - - - - - - - - - - Yuma
"Spinal Anesthesia."

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E. PAYNE PALMER and DUDLEY FOURNIER - Phoenix
"Sodium Amytal in Surgery and Obstetrics."
Discussion on above two papers opened by:
HARRY CARSON, Phoenix.

D. F. HARBRIDGE - - - - - - - - - - Phoenix
"Retinal Vascular System."
Discussion opened by
CHARLES SMITH, Nogales.

SATURDAY, 10 A. M.

JAMES MARR BISAILLLON (*Guest*) - Portland, Ore.
"End Results Following Intrapleural Pneumolysis."

E. A. GATTERDAM - - - - - - - - - Phoenix
"Atelectasis (Massive Collapse) in Tuberculosis"
Discussion opened by
HOWELL RANDOLPH, Phoenix.

W. CLAUDE DAVIS - - - - - - - - - Tucson
"A Study of Intestinal Tuberculosis."
Discussion opened by
FRANK J. MILLOY, Phoenix.

CALVIN EATON - - - - - - - - - - Yuma
"Agranulocytosis"
Discussion opened by
HARLAN P. MILLS, Phoenix.

E. E. PRIEGO - - - - - - - Nogales, Son. Mex.
"Tetanus Following Hemorrhoidectomy."
(Translated by V. A. Smelker, Nogales.)
Discussion opened by
E. C. HOULE, Nogales.

R. D. KENNEDY - - - - - - - - - - Globe
"Clinical Demonstration Fractures."

Entertainments

THURSDAY

Ladies

7:00 P. M. Buffet Supper followed by Bridge at home of Mrs. A. L. Gustetter, President Ladies Auxiliary, 420 Crawford Street.

Men

7:00 P. M. Smoker.

FRIDAY

Ladies

12:00 Noon Luncheon, Episcopal Church, Crawford Street.

Men

12:00 Noon Barbecue Luncheon.
7:00 P. M. Dinner Dance for Doctors and their Ladies.

ARIZONA PUBLIC HEALTH ASSOCIATION PROGRAM

Fourth Annual Meeting—Nogales

MAY 5 and 6, 1931

TUESDAY, MAY 5

12:00 M. to 2:00 P. M.—Registration.

General Meeting, 2 P. M.

Addresses of Welcome:
Mayor H. J. Karnes.
Presidente A. C. Villasenor.
Announcement of Arrangements for Meetings.
Introduction to Members.
Anna I. Nettle, M. D.
"Indians as a Public Health Problem."
A. L. Dopmeyer, P. A. Sanitary Engr., U. S. P. H. S.
"Water Supply and Sewage Disposal Problems on Indian Reservations."
Benson Bloom, M. D.
"Clinical Review of a Dysentery Outbreak."
John Mote,
"Laboratory and Epidemiological Study of a Bacillary Dysentery Outbreak."
Dana E. Kepner, Sanitary Engineer,
"Camp Sanitation in Colorado."

6:30 P. M.

Dinner and Annual Meeting of the Arizona Public Health Association.

8:00 P. M.

Public Meeting: Public Health Motion Pictures.
1. How Biological Products are Made, Parke, Davis & Co.
2. Mosquito Film, University of California.
3. "In a Drop of Water" and
4. "The Fly," Sol Lesser Company.

WEDNESDAY, MAY 6.

Health Officers' Section

Chas. W. Sult, M. D.—"State Board of Health Program."
R. J. Stroud, M. D.—"Epidemiology of Epidemic Meningitis."
A. C. McKean, M. D.—"Outbreak of Meningitis in Gila County."
G. Fasting, M. D.—"Identifying Clinical Suspects and Carriers."
H. Bocock, R. N.—"Nurses' Part in Controlling Meningitis."
J. C. Hicks, D. V. M.—"Antirabic Vaccine for Dogs."
C. L. Harrell—"County Sanitary Inspection."
E. Braddock, R. N.—"Progress in Yavapai County Rural Health Work."
Olive A. Beagan, R. N.—"School Nursing."
Ida Klount, R. N.—"Acitvities of Maricopa County Unit."
State Superintendent of Public Health,
Round Table Discussion of Administrative Problems.

Water and Sewage Section.

C. C. Kennedy—"Proposed Sewage Treatment Plant for Phoenix."
Dario Travaini—"Operation of Miami Imhoff Tanks."
R. F. Goudey—"Reclaiming Water for Industrial and Agricultural Purposes."
Dr. Carl Wilson—"Los Angeles Plan for Reclaiming Water."
G. Marx—"Three Years Operation of Tucson Separate Sludge Digestion Plant."
G. T. Luippold—"Sewage Chlorination for Disinfection and Odor Control."
R. Gilbert—"Improving Miami's Water Supply."
P. Robinson or R. Benzie—"Development of Water for the Southern Pacific."
W. J. Jamieson—"Extension of Phoenix Distribution System."
R. A. Hill—"Determining Source of Municipal Water Supply."
P. Martin—"Well Construction."
Motion Picture of Manufacture of Cast Iron Pipe.

Dairy Inspectors' Section.

R. N. Davis, Univ. of Ariz., Dairy Dept.—"Testing Dairy Herds for Contagious Abortion."
E. L. Stamm, D. V. M.—"Relation of Undulant Fever to Milk Consumption."
J. C. Hicks, D. V. M.—"Cooperation in Dairy Inspection."
J. Waldron—"New Dairy Code."
Paul Cromer—"Milk Inspection in El Paso."
D. W. Fountain (presiding)—"Question Box" (for all dairy inspectors in Arizona).
Visit to Nogales Dairies and milk plants.

6:30 P. M.

Dinner for Health Officers' Section; C. E. Irvin, M. D., presiding.
Industrial Health Hazards of Copper Mining Industry, by F. V. Meriweather, Industrial Hygiene Division, U. S. P. H. S.
Discussion by Dr. Robert Flinn.
Discussion by Dr. F. F. Miller.

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TO CLEAR UP A

CONFUSION

REGARDING THE
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City..... *State*.....

PROGRAM
of
New Mexico State Medical Society
Albuquerque—1931 Session
Alvarado Hotel
May 20, 21, 22

Announcements

Registration headquarters will be in the Alvarado Hotel.

Every member, visitor and guest is asked to register promptly upon arrival.

Scientific and business sessions will be held in the assembly room at the Alvarado Hotel on Wednesday, Thursday and Friday and at the Country Club, Thursday evening.

General discussions limited to three minutes. No one shall speak more than once on the same subject.

Papers read before the scientific sessions shall become the property of the Society and shall be deposited with the secretary for publication in the official organ of the society (Southwestern Medicine).

Bring your wives. The Ladies Auxiliary of the Bernalillo County Medical Society are prepared to entertain the wives of visiting physicians.

Dinner Dance at the Alvarado Hotel, Wednesday evening.

Smoker at the Country Club, Thursday evening.

Noon day Luncheons at the Alvarado Hotel, Wednesday, Thursday and Friday.

Officers

President:
H. C. BROWN - - - - - - - - - Santa Fe
President-Elect:
M. K. WYLDER - - - - - - - Albuquerque
Vice-President:
F. D. VICKERS - - - - - - - - - Deming
Secretary-Treasurer:
L. B. COHENOUR - - - - - Albuquerque
Councilors:
C. B. ELLIOTT - - - - - - - - - - Raton
HARRY MERA - - - - - - - - - Santa Fe
CARL MULKY - - - - - - - - Albuquerque
CHAS. W. GERBER - - - - - - - Las Cruces
W. T. JOYNER - - - - - - - - - Roswell
P. G. CORNISH, JR. - - - - - Albuquerque
Delegates to A. M. A.:
R. A. MILLER - - - - - - - - - - Clovis
W. J. LATTA - - - - - - - -Wagon Mound

Program

WEDNESDAY, MAY 20.

Opening Session—
8:00 A. M. Meeting of Council—Assembly room Alvarado Hotel.
8:30 A. M. Meeting House of Delegates—Assembly room Alvarado Hotel.

Scientific Session, 10:00 A. M.

Invocation—REV. GEO. J. WEBER.

1. Address of Welcome - DR. JAMES F. ZIMMERMAN President of University of New Mexico
2. Reply to Address of Welcome....DR. E. W. FISKE Santa Fe
3. President's Address - DR. MELDRUM K. WYLDER Albuquerque, New Mexico.
4. DR. R. J. GROOM - - - - Santa Rita, N. M. *"Some Comments on Surgery by an Internist"*

NOON—Luncheon Alvarado Hotel

Address—ATTORNEY H. CLARKE, of Gillett & Clarke Denver, on *"Physician's Liability."*

Afternoon Session—1:30 P. M.

1. DR. HUGH JONES - - - Los Angeles, Calif. *"Plastic Reconstructive Surgery of the Extremities."*
2. DR. T. E. CARMODY - - - - - Denver, Colo. *"Some Points in Bronchoscopy."*
3. DR. WILLIAM C. FINNOFF - - Denver, Colo. *"The Relation of Ophthalmology to General Diseases."*
4. DR. S. D. SWOPE - - - - - El Paso, Tex. *"Brain Injuries."*
5. Skin Clinic—
   DR. GEO. P. LINGENFELTER - Denver, Colorado
   Prof. Dermatology & Syphilis,
   University of Colorado

WEDNESDAY EVENING

DINNER DANCE—Alvarado Hotel, 7:00 P. M.

THURSDAY, MAY 21.

Morning Session—9 O'clock

1. DR. JOHN W. AMESSE, President of the Medical Society of the City and County of Denver. *"Sources of Infant and Maternal Mortality in Western States."*
2. DR. JAMES VANCE - - - - El Paso, Texas *"Personal Observations of Cholecystitis."*
3. DR. DAN G. STINE, Prof. Internal Medicine, University of Missouri, Columbia, Mo. *"Hypertensive Disease."*
4. DR. FRANK RIDGE - - - - Kansas City, Mo. *"Modern Diagnostic Methods."*

NOON—Luncheon Alvarado Hotel

Afternoon Session—1:30 P. M.

Meeting of House of Delegates.
Election of Officers.

Scientific Session—1:30 P. M.

1. CURTICE ROSSER, M.D., F.A.C.S. - Dallas, Texas Prof. Proctology, Baylor University College of Medicine. *"The Diagnosis and Management of Rectal Cancer."*
2. DR. NATHANIEL H. BRUSH - Santa Barbara, Cal. *"The Treatment of Delirium Tremens."*
3. DR. M. J. GEYMAN - - Santa Barbara, Calif.. *"Roentgen Diagnosis of Gastro-intestinal Lesions."*
4. DR. VERNE C. HUNT - - Los Angeles, Calif. *"Surgical Treatment of Peptic Ulcer."*
5. PROF. FRED W. ALLEN JR. - - - - , University of New Mexico. *"Intestinal Parasites."*

THURSDAY EVENING SESSION
COUNTRY CLUB—8:00 O'Clock

1. DR. JOHN W. AMESSE, President of the Medical Society of the City and County of Denver. *"Wm. Beaumont, America's First Contribution to World Medicine."*

SMOKER

FRIDAY, MAY 22

Morning Session—9 O'clock

1. CURTICE ROSSER, Prof. Proctology Baylor University College of Medicine, Dallas. *"Odds and Ends in Proctologic Practice."* With Lantern Slide Illustrations.
2. DR. R. E. MCBRIDE - - - Las Cruces, N. M. *"The Serum Treatment fo Pneumonia."*
3. DR. P. L. TRAVERS - - - - - Gallup, N. M. *"Tribromethyl Alcohol Anesthesia."*
4. DR. C. G. GELLENTHEIN - - Valmora, N. M. *"A Resume of Diet Therapy."*

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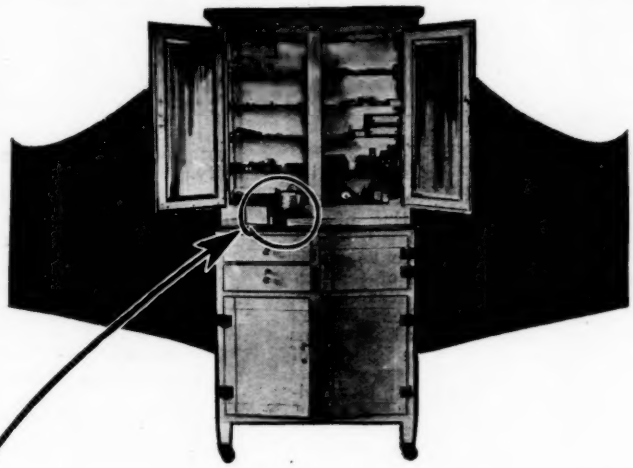

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Afternoon Session—1:30 P. M.

1. DR. W. R. WASHBURN - - Fort Bayard, N. M.
   "Etiology Graves' Diseases."
2. DR. R. A. DUNCAN - - - - Amarillo, Texas
   "Chronic Frontal Sinusitis."
3. DR. M. E. CULPEPPER - - - Carlsbad, N. M.
   "Septic Sore Throat."

General Session, 3:00 P. M.

Report of House of Delegates.
Resolutions.
Good of the Profession.
Adjournment.

SECTIONAL MEETING OF AMERICAN COLLEGE OF SURGEONS

The most pretentious sectional meeting of the American College of Surgeons yet held will be the meeting in Oakland, Calif., April 23 to 26. This sectional conference includes the states of California, Arizona, Nevada, Utah, Idaho, Washington, Oregon and British Columbia. The headquarters will be at the Oakland Hotel. Detailed programs have already been distributed to all the Fellows of the College in the states named and many from Arizona are planning to attend. There will be surgical clinics at the local hospitals, round table conferences, clinical addresses by visiting surgeons and community health meetings. Among the eminent surgeons who will take part in the conference may be mentioned the following: C. Jeff Miller of New Orleans, President of the College; Franklin H. Martin of Chicago, Director General of the College; Charles H. Mayo of the Mayo Clinic; George W. Crile of Cleveland; Allen B. Kanavel of Chicago, President-Elect of the College; Vilray P. Blair of St. Louis; Burton J. Lee of New York; Louis H. Clerf of Philadelphia; Harry M. Richter of Chicago; Harvey J. Howard of St. Louis, and others.

Request for reservations should be sent directly to Dr. Charles A. Dukes, 426 17th St., Oakland, Calif.

EUROPEAN CLINICS
SUMMER—1931

A co-operative tour of European clinics is being offered this year under the auspices of seventeen State Medical Journals.

The arrangements are unusually thorough and the prices are amazingly low for the type of accommodations provided.

It is an expedition that sets a new standard in the field of clinic tours.

Fill in this Form and send it to the Editor of your Journal:

The list of men in Europe who are making all local arrangements in each place for the members of our party is as follows:

LONDON

A. McBeth Elliott, M. D., Master of Surgery.

HOLLAND

Dr. Jan Shoemaker, Head of the Shoemaker Clinic in The Hague, asisted by Dr. W. H. Teupken.

BERLIN

Dr. Max Boehm, Medical Advisor of the German Government.

LEIPZIG

Dr. Wilhelm Lange, Director of the Nose and Ear Clinic of the University and of the new Pathologic Anatomical Institute.

DRESDEN

Dr. Otto Rostoski and Dr. Hans R. Bahrdt, Professors in the University and Chief Surgeons of the Municipal Hospital.

PRAGUE

Professor Arnold Jirasek, Professor of Surgery in Karlova University.

VIENNA

Hofrat Dr. Anton Eiselsberg and Hofrat Dr. Julius Wagner-Jauregg, Professors in the University of Vienna.

MUNICH

Professor Dr. Erich Lexer, Director of the Institute of Clinical Surgery and Professor Dr. Friedrich Mueller of the Medical Faculty.

ZURICH

Professor Dr. Otto Veraguth, Dean of the University.

BERNE

Dr. Karl Wegelin, Dean of the Medical Faculty. A cordial welcome from Dr. De Quervain.

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PARIS

Dr. Henri Hartmann, Professor of Surgery in the University of Paris and President of the National Committee on the Development of Medical Connections.

This list could not easily be improved upon.

RADIOLOGICAL CONGRESS

The week in Paris coincides with the meeting of the International Radiological Congress. President Dr. Becler has expressed a genuine interest in having our members visit the Congress. The Congress will be comprised of six different sections, as follows:

1. Radio physics.
2. Radio biology.
3. Radio diagnostics.
4. Radio therapy.
5. Medical electrology.
6. Natural and Artificial Heliotherapy.

The following questions will be analyzed:

1. Radiological examination of the Alimentary Canal.
2. Radiologic examination of the Urinary Tract, with concrete illustration.
3. Treatment of Cancer.
4. Radiotherapy of Inflammatory Diseases.
5. Electrotherapy Diathermic of Inflammatory diseases.

There will be an elaborate exhibit organized in connection with the Congress. Members who desire to take part in the festivities and receptions in connection with the Congress should send their subscription in advance to the Secretary of the Congress, Dr. Ledoux-Lebard, 122 Rue de la Boetie, Paris (VIII). The subscription is 300 francs ($12) for official members attending the Congress and 50 francs ($2) per person for those accompanying members.

In each case a conference of thirty minutes' duration will be held in the presence of the whole assembly and members of the Congress are cordially invited to bring forth the results of their personal experience on the different subjects involved.

Please send me details of the above tour.

Name .....

Address .....

Specially interested in .....

Number in party .....

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Whenever possible, the goods will be advertised in our pages; but if they are not, we urge you to ask Southwestern Medicine about them, or write direct to the Cooperative Medical Advertising Bureau, 535 N. Dearborn St., Chicago, Illinois.

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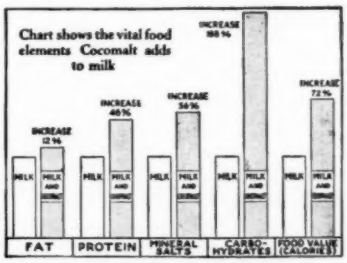

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PAN AMERICAN MEDICAL ASSOCIATION

City of Mexico, July 26 to 31.

The Third Congress of the Pan American Medical Association will be held in the city of Mexico from the 26th to the 31st of July.

On Sunday, July 26, the inaugural session will be opened at the Bolivar Hall of the National Preparatory School by the Honorable President of the Republic.

On Monday, July 27, there will be clinical demnostrations at the hospitals and laboratories, with sectional meetings in the afternoon, and reception in the evening at Chapultepec Castle under the auspices of the Honorable President of the Republic.

On Tuesday, July 28, there will be forenoon clinical demonstrations, afternoon sectional meetings, with a concert in the evening.

On Wednesday, July 29, visits to the Department of Public Health in the forenoon, sectional meetings in the afternoon, and a general session at the Academy of Medicine, in the evening, in honor of the foreign delegates.

On Thursday, July 30, sectional meetings all day, with ball by the Department of Public Health in the evening.

On Friday, July 31, final business and clinical sessions.

Special excursion rates are being offered by railroad and steamship lines. Further information can be obtained from Dr. Francisco de P. Miranda, Exec. Secy. of the Congress, Department de Salubridad, Mexico City, or from Dr. Conrad Berens, Treas. of the Pan American Medical Association, 35 East 70th St., New York City.

THE DOCTORS AS THEY PASS BY

Impressions

It will be interesting to our readers familiar with the medical profession of Phoenix, as it was to the editor, to identify the various members of the hospital staff, from these lyrically expressed characterizations).

Sandy hair, blue eyes, athletic and tall;
You'll find him in his office if pleasure does not call;
He'd rather have you rave about his prowess on the green
Than the skill it takes to excise an appendix or a spleen.

With children he's sympathetic and kind,
With charming persuasion he gets them to mind;
But with others, he's quite often reverse,
Offers criticism unasked, and answers perverse.

To read his progress notes is a treat,
With wit and sarcasm they are replete,
Brilliant, individualistic and wise,
Yet when he operates, everybody sighs.

A brown-eyed tease, with black wavy hair,
For whom most of the nurses have a decided flair;
He likes to play poker the whole night thru;
As an urologist, he's equalled by few.

A clever surgeon who believes in specializing,
A new clinic he's in the midst of organizing;
But alas and alack, he fumes and he bellows
About the shortcoming of the other fellows.

A public health worker who fights to the limit
For any project he thinks should go thru;
For his private practice he ne'er has a minute,
Yet the fair sex he'll always find time to pursue.

Postgraduate Course

A Series of Clinical Conferences

An opportunity for the general practitioner to observe clinically the latest developments of diagnostic and therapeutic methods being used in special fields of medicine and surgery will be offered by the Clinical Conferences to be held in St. Louis, June 15 to 26, 1931, under the direction of the St. Louis Clinics.

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As a radiologist he's gained international fame,
But as an editor, he's now making a name.
His writings are sarcastic yet replete with dry wit;
His large solemn eyes often merriment emit.

Though you go to have your laryngeal troubles banished,
You're more apt to have your inferiority complexes vanished
For he'll caress you and whisper flattering lies
While he's treating your nose, your throat and your eyes.

He dances entrancingly,
Flirts most convincingly,
Puts you "to sleep" skilfully,
Goes on his way blissfully.

As a surgeon he's efficient and speedy,
Treats alike the rich and the needy;
If a bearing-down pain to him you mention,
He's sure to do an immediate suspension.

In his gayer moments, he drives a Pierce Arrow,
In his humbler moments a Ford.
His patients adore him today and tomorrow;
But at home, he's not always master and lord.

Conscientious, painstaking and wise,
To the top he is certain to rise.
By faculty and nurses, he's still called a dear
After acting as house doctor for one whole year.

From a foreign country he's just returned.
Where new drinks he's sipped and new customs learned.
But now he's compelled to get down to facts.
Such as examining kidneys and exploring urinary tracts.

Still water runs deep is a well known fact,
And this tall quiet man is precisely like that;
The profound thoughts he's thinking would be hard to surmise,
While he's taking out tonsils and examining eyes.

He's very precise—yet gentle and tender;
Untiring, skillful service he'll render.
Stature small, eyes blue, hair white;
Unquestionably a surgeon of might.

With the stork he is in close alliance;
Carries out his technic despite others' defiance.
He's so much in demand that he's always in a hurry;
When he gets that airplane, he won't have so much worry.

This doctor is strictly in it,
Enjoys life to the very limit;
He drinks good liquor and rides wild horses,
Intrigues pretty women, need not worry about his losses.

The most business-like doctor in this whole town,
Alert, skillful, with dazzling eyes of brown;
He's very particular about his charts;
Specializes in lungs and hearts.

Dapper, cheerful, debonair,
Always wears a boutonniere;
For diet and allergy, he has a flair;
With the fair sex, he is "there."

Not only a good surgeon but a general as well,
Who does not hesitate to say damn and hell;
His patients rave about him until it's alarming,
So, at times, he **must** be gentle and charming.

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A nurse who, morn and night, keeps track of his itinerary.

A melodious voice with an accent charming;
Who procrastinates in a manner disarming;
As a diagnostician he's really a shark;
The Water Users keep him busy till dark.

Brilliant, handsome, young and single,
With the fair sex he does not mingle.
In surgery he will make his name;
On the green, he's gaining fame.

Deeply interested in our medical society,
He's helped solve problems of variety.
Sedate, philosophical, punctilious to a degree;
But his chief aim in life is to get the blind to see.

Tall and thin, with a smile so enchanting,
That instantly flouts all criticism and ranting;
Has his own ideas, and will carry them through
Despite the fact that he appears to be agreeing with you.

He did things to the County Jail,
Compelled them to use the mop and the pail.
Erratic, conceited, dynamic in action;
Women and wine for him have a desperate attraction.

His name he refuses to write in the book,
He wears a rather preoccupied look;
While others procrastinated, he's gone and operated;
The patient gets well, and of course he's congratulated.

Though he had the chance to specialize in urology,
A country town he chose in which to practice philosophically;
An all round good fellow, who dotes on the fair sex;
He comes from Kentucky—what else could one expect?

A man's man through and through;
Hunts, flies and fishes too.
Yet women consult him the whole day through
About marital difficulties and pregnancies, too.

Tall, sedate, a manner austere,
But after you know him, you've nothing to fear.
In the "lab" he spends most of his days,
Cutting up tissues and taking x-rays.

A diffident benedict, charming and young,
By his associates his praises are sung.
He comes from Chicago where he led the single life,
But under Arizona skies, he plans to take a wife.

Our youngest otolaryngologist,
Growing famous in the West
In extracting froeign bodies
From children's throats and chests.

Saunters in, makes his rounds lackadaisically;
Refuses to sign charts, procrastinating graciously;
About the most popular surgeon in this location,
Expecting and receiving service and admiration.

A graduate of Harvard is he;
A deep thinker, interested in psychology.
Yet his manner is frivolous and gay,
Keeps a whole party amused in a remarkable way.

A rare individual, doing good for his fellowmen,
Without desiring glory or recompense;
His disposition is gracious and fine,
Delivering babies is his special line.

ROENTGEN DIAGNOSIS AND TREATMENT OF ENLARGEMENT OF THE THYMUS. Eugene P. Pendergrass, Philadelphia, Pa. The Penn. Med. Jour., Sept., 1930, p. 860.

There are certain definite and well founded facts concerning the thymus which are not sufficiently well known and which deserve consideration. The author concurs in the views of Jackson that thymic menace is largely one of tracheal compression. Any roentgenologic technic undertaken in the study of the thymus must include the upper respiratory tract, and must include a preliminary fluoroscopic study in essentially the same positions as the roentgenographic views. Sagittal views are made on a low table with infant prone upon the cassette. Tube distance is 38 inches and directly over the suprasternal notch. One attendant holds the lower extremities and hips; another holds the upper extremities above the head which must be exactly straight, without slightest rotation to either side and midway between flexion and extension. Exposures can be made in 1/20 sec. and 100 ma. or faster if desired. One exposure is made during expiration and one during inspiration, the child being made to cry for sake of deeper inspiratory effort. An exact lateral view is also required, the arms being held downward and back, shoulders thrown as far forward as possible; use twice the exposure above mentioned, also during expiration and during inspiration. As result of some experimental work, he concludes that exposures should also be made in the erect position, and an adaptable chair has been devised for this purpose.

In considering radiation therapy of the thymus, it is recalled that the gland is extremely susceptible to radiation, symptoms of enlarged thymus sometimes disappearing after an ordinary x-ray examination. Another important observation, not always remembered, is that the gland can regenerate in from five to ten days. Conservative treatment is advanced, giving from 1/3 to 1/4 of an erythema dose over the thymic region, and not repeating unless the symptoms either do not disappear or return. An interval of ten days is allowed between treatments and rarely is more than four treatments required. The factors employed are 130 kv. 5 ma., 10 in. distance, 4 by 4 in. portal, 5 mm. Al filter, 3 to 4 mins. time. Roentgen therapy is almost a specific for enlarged thymus, and if symptoms do not disappear after several treatments, search should be made for some other cause.

DIVERTICULITIS OF THE COLON, WITH SPECIAL REFERENCE TO ACUTE PEFORATIONS OF THE SIGMOID. R. W. Whitman, M.D., Roanoke, Va., The W. Va. Med. Jour., Sept., 1930, p. 544.

Diverticula are found in any part of the alimentary tract, but most frequently in the large intestine; this discussion is concerned with diverticulitis of the colon and especially of the sigmoid. Diverticula may be true or acquired; in the former all layers of the intestinal wall are included; in the latter there is herniation of the mucosa through the weakened muscular layer, leaving only mucosa, submucosa and peritoneum forming the sac. So long as diverticula remain free from infection, their presence is of little consequence; but, like the appendix, if they become infected, there is a different picture to deal with. Diffential diagnosis between diverticulitis and carcinoma of the colon is always difficult. Careful study of symptoms with compe-

tent x-ray study are the main dependencies in the diagnosis. Spriggs in 1000 consecutive cases of x-ray study of the colon in patients with abdominal complaints, found about ten per cent of them with some phase of diverticulosis. It is important to discover the presence of diverticulosis. It is important to discover the presence of diverticulosis before it develops into surgical diverticulitis.

UTEROSALPINGOGRAPHY IN GENERAL PRACTICE; CASE REPORTS. J. Martin Johnson, M.D., Ripon, Wis. The Wis. Med. Jour., Sept., 1930, p. 497.

The author's procedure is preliminary and operative. In the preliminary stage, a careful history is taken and complete physical examination made; this latter includes determination of the patency of the cervix, and dilatation of the canal made. Following this, patient may be taken or sent to the x-ray laboratory, the cooperation of an experienced roentgenologist being deemed essential. With the patient on the table equipped with Bucky diaphragm, by means of the Pressometer lipiodol is injected; the fluoroscope may be used to follow the injection, if desired. After four or five c.c. have been injected the first film is made, and the patient allowed to flex or extend her legs, though without disturbing the nozzle in the uterus. After developing the first film and noting the amount of oil injected, a second injection is made, and a total of 10 c.c. should be sufficient in the majority of cases. This procedure definitely outlines the uterus, tubes and localizes the point of obstruction if tubes are not patent. The procedure is harmless and may be readily accomplished by the physician who adheres to fundamental principles.

CONFIGURATION OF THE HEART IN CARDIAC DISEASE. Arthur L. Smith, M.D., F.A.C.P., Lincoln, Nebr. The Neb. State Med. Jour., Sept., 1930, p. 337.

No one can make a diagnosis of heart disease by the use of x-ray alone, though the x-ray examinations have supplied us with many invaluable facts. The principal advantage of radiography is the making of permanent records of size, shape and position of the heart and its large vessels, while fluoroscopy is valuable in watching the movements of those organs. Combined fluoroscopy and orthodiagraphy are the most valuable. The size, shape and position of the heart varies, as does the body of the patient; the size of the heart ordinarily varies directly with the size of the body, but not always. Many elaborate measurements have been devised, but in the usual case, the more simplified method is all that is necessary. In left ventricular hypertrophy the increase in size is to the left and apex is rounded, best seen in the left anterior oblique position; typical example is seen in arterial hypertension. In mitral configuration, the left border bulges in region of left auricle and right auricle is pushed to right. The aortic configuration is an enlargement of left ventricle and widening of aortic shadow. The article is illustrated by a number of very excellent drawings, showing heart outlines in all types of heart disease.

Eye, Ear, Nose and Throat man in active practice and good standing, experienced and accomplished, desires location or association in New Mexico or Texas for the benefit of a warmer climate. Add. Box W, Southwestern Medicine.

Hormone and Cancer.—The effort to influence the growth of cancer by various organ extracts is being widely made at present. Logically it might be profitable to inquire why such trials are being made since every pathologist sees cancer growing freely in those organs whose hormonic acitvity is high. The work of Bischoff and his colleagues should be repeated with a tumor that does not spontaneously recede and, if the results are the same, should close the discussion on the possible therapeutic action of extracts from the group of organs tested. (Jour. A. M. A., November 1, 1930, p. 1350.)

Intoxicating Effect of Acetylsalicylic Acid and Coca Cola.—A physician reports that young people in his community are using from 15 to 20 grains of acetylsalicylic acid (aspirin) dissolved in the soft drink Coca Cola, as an intoxicating beverage. The effects are due chiefly to central depression caused by the acetylsalicylic acid fortified possibly by a direct central stimulant action of caffeine and other constituents present in Coca Cola. The actions of acetylsalicllic acid are similar to those of small doses of alcohol, or of a weak alcoholic beverage or of the barbitals or bromides. When acetylsalicylic acid is taken with a beverage like Coca Cola, advertised for its exhilarating effects, which may be caused by a direct central stimulation by caffeine or other constituents of the latter, it is easy to see how the effects of one can be fortified by the other. The continued use of such a medicated beverage may result in undesirable effects of the same general nature as those of narcotic habituation. Here is a most insidious evil, the reenforcement of a popular and highly advertised beverage by a well advertised drug, both long suspected of dangerous tendencies. (Jour. A.M.A., November 1, 1930, p. 1366.)

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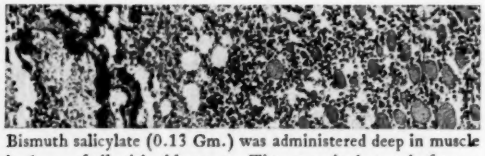
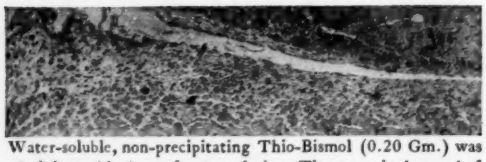
Bismuth tartrate (0.09 Gm.) injected in 1 cc. of water solution. Tissues excised at end of 48 hours. The bismuth has been precipitated in connective tissue trabeculae by tissue fluids. All tissue structures entirely necrotic.



Bismuth salicylate (0.13 Gm.) was administered deep in muscle in 1 cc. of oil with chloretone. Tissues excised at end of seven days. Injected site shows leucocyte infiltration, some muscle fibre destruction, oil lakes and some unabsorbed bismuth. Injury is comparatively mild.



Water-soluble, non-precipitating Thio-Bismol (0.20 Gm.) was administered in 1 cc. of water solution. Tissues excised at end of 7 days. Site of injection presents a young connective tissue scar. Unusually rapid healing of injured tissues.

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